UNIVERSIDADE PORTUCALENSE

Proceedings of the 22nd European Conference on Management, Leadership and Governance

Hosted by Universidade Portucalense, Porto, Portugal

05-06 November 2026



Edited by

Fernando Moreira and

Shital Jayantilal

acpi

A conference managed by ACPI, UK

Proceedings of the

22nd European Conference on Management Leadership and Governance

ECMLG 2026

A Conference Hosted By Universidade Portucalense, Porto, Portugal

5-6 November 2026

Edited by Fernando Moreira and Shital Jayantilal

Copyright the authors, 2026. All Rights Reserved.

No reproduction, copy or transmission may be made without written permission from the individual authors.

Review Process

Papers submitted to this conference have been double-blind peer reviewed before final acceptance to the conference. Initially, abstracts were reviewed for relevance and accessibility and successful authors were invited to submit full papers. Many thanks to the reviewers who helped ensure the quality of all the submissions.

Ethics and Publication Malpractice Policy

ACIL adheres to a strict ethics and publication malpractice policy for all publications – details of which can be found here:
http://www.academic-conferences.org/policies/ethics-policy-for-publishing-in-the-conference-proceedings-of-academic-conferences-and-publishing-international-limited/

Self-Archiving and Paper Repositories

We actively encourage authors of papers in ACIL conference proceedings and journals to upload their published papers to university repositories and research bodies such as ResearchGate and Academic.edu. Full reference to the original publication should be provided.

Conference Proceedings

The Conference Proceedings is a book published with an ISBN and ISSN. The proceedings have been submitted to a number of accreditation, citation and indexing bodies including Clarivate Web of Science and Elsevier Scopus. Author affiliation details in these proceedings have been reproduced as supplied by the authors themselves.

From 2022 these proceedings are open access and freely available for all to read from
The Electronic version of the Conference Proceedings is available to download from
https://papers.academic-conferences.org/index.php/ecmlg .
The Conference Proceedings for previous years can be purchased from www.proceedings.com

E-Book ISBN: 978-1-918691-03-0
E-Book ISSN: 2048-903X
Print version ISBN: 978-1-918691-04-7
Print Version ISSN: 2048-9021

Published by Academic Conferences & Publishing International Ltd
Reading, UK
+44 (0) 118 324 6938
www.academic-conferences.org
info@academic-conferences.org

Contents

The papers in these proceedings were presented at the conference in sessions organised by topics, but are presented here by type of paper and then alphabetically by lead author surname

About the Proceedings of the 22nd European Conference on Management, Leadership and Governance x

Preface xii

Biographies of Chairs and Keynote Speakers xiii

Review Committee xv

Academic Papers

The Human Side of Digital School Leadership: A Dynamic Digital Leadership Competency Framework for School Leaders
Mohd Yusof Abd Manan, Fanny Kho Chee Yuet, Dayang Rafidah Syariff M. Fuad 1-8

Does Ethical CSR Buffer the Creativity Cost of Cyberbullying?
Aizza Anwar, Viktorija Skvarciany 9-16

Beyond Digitalisation: Evaluating Citizen Experience in Romanian E-Government Services
Mihaela Apostol, Alexandra-Mirela Kiș, Teodor-Iulian Gheorghe 17-26

Hybrid Human-AI Decision-Making Models: A Conceptual Framework for Organizational Integration and Strategic Implementation
Azam Bejou 27-34

Mapping Life Cycle Costing: Methods, Applications, and Management Implications
Alba Bruno, Tamara Menichini 35-42

Implementation of Strategic Metrics and Action Plans: A Finnish Case Study on Practical Execution
Kristiina Brusila-Meltovaara, Olli Vartiala 43-50

From Decision-Maker to Decision Architect: Generative AI and the Changing Role of Leadership
Kristiina Brusila-Meltovaara, Lasse Torkkeli 51-58

Responsible AI Governance for Student-Centred Digital Transformation in Higher Education
Mark Anthony Camilleri 59-67

Bridging Science and Coaching: Towards a Science-Led, Human-Centred Approach to Personal and Organisational Wellbeing
Namrata Roy Chowdhury 68-76

International Academic Mobility and Human Capital Development: Evidence from Erasmus Students in an European Higher Education Institution
Vânia Costa, Raquel Pereira, Gabriela Ribeiro 77-86

AI Use, Environmental Awareness and Moral Disengagement Among Gen Z Business Students
Dovile Daveluy, Adib Bensalem 87-95

Speaking the Same Language? Cultural Differences in Written Business Communication between Germany and the Asian/IPBC Region
Johanna Deger, Andreas Zehetner 96-104

Staying Relevant or Becoming Invisible? Human Legitimacy in Extended Working Lives
Teresa Dieguez, Carla Azevedo Lobo 105-113

Smart Cities and Digital Inclusion in Education: The Role of Public Administration in Bridging the Digital Divide
Maria Antonela Dima, Mihaela Sima 114-120

Tacit Erosion: Does AI-generated Feedback Undermine Critical Feedback Competence & Organisational Innovativeness? A Scoping Review
Bettina Falckenthal, Cláudia Figueiredo, Manuel Au-Yong-Oliveira 121-129

Human vs Algorithmic Leadership: Justice, Commitment, and Job Satisfaction
Filippo Ferrari 130-138

The Influence of Workload on Work-Life Conflict: Empirical Evidence from Accountants
Soraia Ferreira, Márcia Duarte, Oscarina Conceição 139-147

Building an Interdisciplinary Additive Manufacturing Ecosystem: A Case Study of TUM.Additive
Sreeja Gadhiraju, Katrin Wudy, Peter Mayr 148-155

The Social Impact Assessments (SIA) and Environmental Impact Assessments (EIA) in Mexico: CSR Tools for Sustainable Development or Just a Legal Process to Fulfill?
Armando Garcia Chiang 156-162

Ethical Leadership in Healthcare Management: The Case of Greek Hospitals
Konstantinos Giannakos, Dimitrios Belias, Athanasios Koustelios, Nikolaos Tsigilis 163-172

Impact of Emotional Intelligence and Leadership on Employee Outcomes in Greek SMEs
Styliani Gkiosi, Anastasia Adali 173-180

The Influence of Cultural Intelligence on Immigrant Employees' Job Satisfaction and Discrimination
Eva Gonçalves, Márcia Duarte, Oscarina Conceição 181-189

Evaluating Sustainable Implementation of National Innovation Systems through Technology Audits: Evidence from Brazil's SENAI Innovation Network
Fabian Hecklau, Markus Will, Florian Kidschun, Holger Kohl 190-196

The Role of Artificial Intelligence for Technology Managers in the Logistics Industry
Denis Imhof, Dominik Wörner, Stella Gatziu Grivas 197-204

A Study of Dynamic Capabilities for Digital Transformation Among Top Rated Norwegian Law Firms
Fred Strønen, Johanna Viola Jacobsen 205-212

Defending the Home Turf: Agility and Strategic Acceleration Amid Global Retail Entry
Lou-Anndree John, Zanele Ndaba 213-220

Collectivistic Leadership as a Mechanism of Leadership Without Hierarchy in Emerging Organisational Forms: An Integrative Literature Review
Reilika Jugolainen-Klesnina, Kurmet Kivipõld 221-229

Augmentation or Attrition? Task Redistribution After a Generative AI HR Deployment
Rohini Krishna Kaninde 230-238

Managing Integrity or Reporting Compliance? Analysing Integrity Plans as Organisational Instruments in Romanian Public Administration
Alexandra-Mirela Kiș, Mihaela Apostol, Teodor Iulian Gheorghe 239-246

Family Offices as Relational Governance Mechanisms in Family Firms: A Systematic Literature Review
Ricardo V.B. Koch, Shital Jayantitlal, Sílvia F. Jorge 247-256

Development of Emotional Intelligence in the Czech Armed Forces
Eva Kozáková 257-264

Agile Mindset Leader as the Leader of the Future: Collective Human and Artificial Intelligence Broker
Wioleta Kucharska; Jari Jussila; Maciej Kucharski 265-274

Transforming Morocco's Prosocial AI Potential : Multilevel Governance Framework, Prosocial AI Index and National Charter for Sustainable Human Development
Abdelmjid Lafram, Salah Eddine BAHJI 275-284

Quality Management for Pupil Health in Schools
Stefan Lagrosen, Yvonne Lagrosen 285-292

CSRD Impact in Portugal: First-Year Evidence and Determinants of Application
Kátia Lemos, Sónia Monteiro, Marta Araújo 293-302

The Auditor's Dilemma: AI Adoption, Trust and Regulatory Legitimacy in Auditing
Isabel Maldonado, Carlos Pinho, Natacha Silva, Helena Oliveira 303-311

A Typology of Strategic Collective Decision-Making in Health NGOs
Peter Mazunga, Noel Pearse 312-321

CEO Sustainability Narratives in the World's Best Workplaces: An Exploratory Gender-Sensitive Content Analysis
Stefania Roberta Miccoli, Tamara Menichini, Nicoletta Maria Strollo 322-330

Gender Diversity, Structural Characteristics and Performance of Listed Companies in Transition Economies
Suzi Mikulić 331-339

Differential Pathways to Digitalisation: A Multi-Group Analysis of Trade and Services SMEs
Irena Mladenova, Zhelyu Vladimirov 340-348

Cultural Configurations and Quality Management Maturity in the Public Sector
Veronica Moscon 349-357

Influence of Participative Leadership on Worker Performance in a Hybrid Social Enterprise
Okuhle Mtilwa, Stanley Fore, Jephita Matande 358-368

Exploring the Alignment of Internal and External Branding: A Grounded Theory Study of Leadership in a South African Organisation
Vinessa Naidoo 369-378

A Phantasmagoria: Does Learning and Development Support Organizational Performance?
Hester Nienaber, Richard G McNeill 379-388

The Hierarchy of Strategic Intent: A Standardized Architecture for Purpose-driven Organizational Design
Kelly Erin O'Brien, Marylou Shockley 389-397

Making Strategy Work Through Staff Agency in Times of Change
Outi-Maaria Palo-oja, Pasi Juvonen 398-405

Knowledge Management as a Driver of Competitive Advantage in SMEs: A Multisectoral Study
Nuno Pimenta, Paula Oliveira, Sílvia Faria, Manuel Sousa Pereira 406-413

Team Readiness as a Leadership Capability: A Study of Military Students
Jaromir Pitaš, Petr Čech, Miroslav Mašlej 414-422

Competence Development as a Leadership and Governance Practice in Micro and SMEs: Observations from EK Inno Workshops in South Karelia, Finland
Heli Rantanen 423-430

Employee Engagement as Digital Twin Innovation Driver: Conceptual Framework
Lucilia Ribeiro, Ana Martins, Elisabete Nogueira 431-438

The Organization of Wrongdoing: The Strategic Role of Leadership
Sara Rocchi 439-445

Perceiving Human–AI Creative Competition: An Exploratory HCC Discourse Study
Orsolya Sadik-Rozsnyai, Barbara Caemmerer 446-453

Repurposing Organizational Learning Processes to Facilitate Sensemaking/Sensegiving in a Memetic Digital Twin Environment
Ulrich Schmitt 454-463

Digitalisation of Work Processes and Fear of Job Loss: Does Digital Risk Governance Play a Role?
Łukasz Sienkiewicz 464-474

Women Leaders in Public Administration Through Representative Bureaucracy Theory: An Integrative Review
Marisa Zikan , Solange Maria da Silva, Fernanda Lindemeyer Pieri ,
Rayssa Nunes da Silva 475-482

Social Innovation and Public Sector Performance: The Mediating Role of Social Cohesion and Digital Inclusion
Mihaela Sima, Maria Antonela Dima 483-491

Leadership Styles and Burnout in SMEs: Employees' Perceptions and Organizational Implications
Tânia Sousa, Pedro Novo Melo, Cláudia Rodrigues 492-499

The Ethics and Identification of Combat Leadership: Navigating High-risk Research in a High-tension Global Landscape
Jakub Stříbrný 500-504

Materiality Assessment as a Governance Lens for the Twin Transition: A Cross-Sector Analysis
Nicoletta Maria Strollo, Tamara Menichini, Stefania Roberta Miccoli 505-513

Integrating Stewardship into the Management and Leadership paradigm for a Regenerative Future
Emőke Takács, Toon Abcouwer 514-522

Sustainable Leadership and Green Investment Decisions: The Role of ESG Integration in Reducing Financial Risk
Mohammad Talha, Syed Mohammad Faisal Khan, Ahmad Khalid Khan Khan 523-531

Employees' Perceptions of Transformational Leadership and its Relationship with Employee Productivity in Organisations
Tshingombe Tshibangu , Stanley Fore 532-540

Malta's Local Governance: Systemic Malaise, Centralization and Capacity Challenges
Mario Thomas Vassallo 541-549

From Economic Wealth to Multidimensional Sustainable Wealth: A New Business Management Model
Jose-Manuel Vega-Baez, Berenice Juarez-Lopez 550-557

Digital Twins as Governance Infrastructures in UNESCO Low-Density Landscapes
Ana Vieira Martins, Lucília Ribeiro, Elisabete Nogueira 558-566

Female Leadership Ambitions in Germany: A Comparative Qualitative Career-Stage Analysis
Elisa Weisman, Anmol Kaur, Rania Azougaghe 567-573

Leaders use it First: How Leadership Role Modeling Shapes the Sources and Grounding of AI Self-efficacy in Knowledge-intensive Roles in Morocco
Amine Zenjari, Oumnia Sidqui, Amal Zaki 574-582

PhD Papers

Challenges and Opportunities of Diversity, Equity and Inclusion in Accounting: Insights from an Eastern European Context
Raluca-Andreea Achim, Camelia Iuliana Lungu 584-592

The Leadership Personality Evolution Model: Psychosocial Foundations of Leadership Orientation
Michael Faakye 593-600

Leadership Diversity, Governance Quality, and Responsible Innovation in European Industrial Firms: An Integrative Literature Review
Eva Klink, Michaela Kotková Stříteská 601-610

Carbon Policy, ESG Adoption, and Industrial Marketing: A Bibliometric Analysis of an Empirically Empty Integrative Space
Erisa Luzi, Irma Shyle 611-618

Effectiveness of Early Risk Assessment in Enhancing IT Project Success in Sri Lanka
Dinesha Madurangi Badde Vithanalage 619-627

ESG Integration in Banking Strategy and Reporting: Evidence from the Slovak Banking Sector
Nina Majerovičová, Ján Papula 628-636

AI Enablement in SMEs: Why Theoretical Models Miss the Real Picture
Gvidas Petruzis 637-644

Transformational Leadership, Organizational Resilience, and Business Performance in Contexts of Social Uncertainty: A Conceptual Proposal for SMEs in Portugal
Norberto Semião , Rita Nunes, Jorge Simões, Susana Domingos 645-655

Leading for Alignment: Integrating Internal Marketing and DEI for High-Performance in MNEs
Angela Sousa, Sofia Gomes, Mafalda Nogueira 656-662

Institutional Governance Quality as a Determinant of Energy Investments: Evidence from a Panel of 17 EU Countries
Anca-Violeta Toth, Camelia Iuliana Lungu 663-672

How Does Supply Chain Finance Affect Sustainable Supply Chain Management? A Multiple Case Study of Chinese Baijiu Enterprises
Yingying Wang, Vasco Barroso Gonçalves, Elizabeth Reis 673-679

Work in Progress Papers
Econometric Validation of Sectoral Environmental Innovation Drivers
Michael Mansberger, Rodney Leitner 681-683

Integrated Ethics Management Framework (IEMF) for Local Government in South Africa
Simphiwe Mngonyana, Shaun W Pekeur 684-687

Late Submissions
A Critical Review of Digital Leadership in the Age of AI
Edmont Pasipamire 693-701

Strategic Interagency Collaboration and Regional Stability: Lessons from Nigeria–Benin Border Governance
Ugochukwu Abasilim, Comfort Olanrewaju Sofela, Daniel Eseme Gberevbie, Oluwakemi D. Udoh 702-707

Static and Nomadic Third Culture Adult (TCA) Pathways
Vic Benuyenah 708-714

Beyond Project Delivery: Reimagining Aid Governance for Sustainable Community Development in Nigeria
Paul Chibuike Ezebuilo, Daniel Eseme Gberevbie, Ugochukwu David Abasilim, Celestina Ekene Chukwudi 715-722

Leadership Effectiveness and Foreign Assistance: Assessing Community-Based Infrastructure Sustainability in Southeastern Nigeria
Paul Chibuike Ezebuilo, Daniel Gberevbie, Ugochukwu David Abasilim, Charles Arinze Obiora 723-732

Can the Crippled Giant Walk Again? Evaluating Nigeria's Rising State Credentials in Environmental Resource Governance
Michael Fajobi, Fadeke Olu-Owolabi, Felix Chidozie 733-740

Artisanal Sand Mining, Local Power Structures and Resource Governance in Nigeria
Michael Fajobi, Fadeke Olu-Owolabi, Felix Chidozie, Moses Duruji 741-747

The Future-Self Effect: How Veteran Welfare Shapes Organizational Commitment among Serving Military Personnel
Mark Peter Jatau, Daniel Eseme Gberevbie, Ugochukwu David Abasilim 748-755

Beyond Active Service: Nigerian Military Veterans' Welfare as Strategic Human Resource Management
Mark Jatau, Daniel Eseme Gberevbie, Ugochukwu David Abasilim 756-763

Leadership Competencies for Future Leaders in Dubai Government Organisations
Amira Kamali 764-770

Governing Curriculum Innovation: An Integrated Curriculum Governance Framework for Entrepreneurship Education
Michal Lukáč, Peter Pisár 771-779

Lagos as a Political Leadership Laboratory: Elite Recruitment, Political Succession and National Power in Nigeria's Fourth Republic
Rachel Omoruyi-Onor, Moses Duruji, Ugochukwu Abasilim 780-787

Subnational Capacity and Upward Institutional Influence: Lagos State and Federal Tax Administration in Nigeria, 1999–2025
Rachel Omoruyi-Onor, Moses Duruji, Ugochukwu Abasilim 788-796

The 2026 United States and Israeli Military Conflict with Iran: Implications for International Relations, Global Governance and Security
Rachel Omoruyi-Onor 797-803

About the 22nd European Conference on Management, Leadership and Governance, 2026

The European Conference on Management, Leadership and Governance has evolved significantly over the past 22 years, adapting to the changing landscape of management and leadership practices. Initially focusing on foundational theories and practices in management, the conference has expanded its scope to include a diverse range of topics reflecting contemporary challenges in the field.

In its earlier years, the conference mainly emphasized traditional management principles, leadership styles, and governance frameworks. As global business dynamics shifted, so did the conference's themes, incorporating emerging trends such as digital transformation, sustainability, and ethical leadership.

Aims and Scope

The aims of the conference now not only include sharing academic research but also fostering dialogue among practitioners, policymakers, and scholars to address pressing issues facing organizations today.

Recent editions have featured discussions on topics like organizational resilience, innovation management, and cross-cultural leadership, showcasing the conference's commitment to staying relevant in an ever-evolving business environment. This evolution reflects a broader understanding of management and governance as interdisciplinary fields that require collaborative approaches and innovative solutions.

Topics Covered

The call for papers for the ECMLG conference asked for contributions that considered the following topics. In addition, the committee welcomed papers on a number of specialist mini-tracks which can be seen at the end of this list.

Leadership Styles and Theories:

Exploring various approaches to leadership, including transformational, transactional, and servant leadership, and their impact on organizational culture.

Strategic Management:

Discussions on the formulation and implementation of strategies that drive organizational success, emphasizing agility and adaptability in changing markets.

Digital Transformation:

Examining the role of technology in shaping management practices, including the integration of artificial intelligence and data analytics in decision-making processes.

Sustainability and Corporate Social Responsibility (CSR):

Addressing the importance of ethical leadership and sustainable practices in organizations, highlighting the balance between profit and societal impact.

Cross-Cultural Management:

Investigating the challenges and opportunities of managing diverse teams across different cultural contexts, emphasizing communication and collaboration.

Innovation and Change Management:

Focusing on how organizations can foster a culture of innovation and effectively manage change to remain competitive.

Organisational Behaviour:

Exploring the dynamics of team interactions, motivation, and employee engagement in enhancing organizational performance.

Governance and Policy Making:

Analysing the frameworks and practices that guide effective governance in both public and private sectors.

Experts in the field proposed mini tracks on the following topics. Papers accepted on these topics after the double-blind peer review process were presented as mini tracks at the conference and are also published in these proceedings.

- Sustainable Leadership and Governance in the Digital Era
- The Human Side of Organisational Leadership and Management in the Global World
- Circular Economy and Resource Efficiency: Leadership, Strategy, and Innovation
- AI and Digitalization in a Changing Business World
- Strategic Educational Leadership and Digital Resilience: Navigating Governance in Crisis Contexts

The programme from the 2026 conference can be downloaded from here and full details about the conference can be seen from the conference website: https://www.academic-conferences.org/conferences/ecmlg/

ECMLG 2026 Preface

These proceedings represent the work of contributors to the 22nd European Conference on Management Leadership and Governance (ECMLG 2026), hosted by ACPI and Universidade Portucalense, Porto, Portugal on 05-06 November 2026. The Conference Chair was Fernando Moreira and the Programme Chairs was Shital Jayantilal both from Universidade Portucalense, Porto, Portugal.

ECMLG is a well-established event on the academic research calendar and now in its 22nd year the key aim remains the opportunity for participants to share ideas and meet the people who hold them. The aims and scope of the conference is to be a forum for practical, technical and theoretical exchange about the study, management, development and implementation of issues pertaining to management, leadership and governance from a multidisciplinary context.

The opening keynote presentation was given by Professor Carlos Brito from Porto Business School, Porto Portugal, who spoke about "*Old Wine in a New Bottle: The Port Wine Ecosystem*". The second day of the conference opened with an address from Sital Ruparelia, Founder of Talent X Tech who discussed *"Human-Centred Leadership in the AI Era".*

With an initial submission of 208 abstracts, after the double blind, peer review process there are 95 Academic research papers, 12 PhD research papers and 3 work-in-progress papers published in these Conference Proceedings. These papers represent research from Australia, Brazil, Colombia, Czech republic, Ethiopia , Finland, France, Ghana, India, Indonesia, Iran , Israel, Kuwait, Malaysia, Morocco, Nigeria, Norway, Pakistan, Peru, Poland, Portugal, Saudi Arabia, Saudia Arabia, Schweiz, Slovakia, South Africa, Taiwan, The Netherlands, Tunisia, UK, UAE and USA.

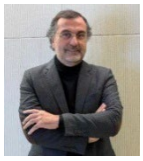
We would like to thank everyone who participated in this conference.

Fernando Moreira and Shital Jayantilal

Universidade Portucalense,
Porto, Portugal
November 2026

Biographies of Chairs and Keynote Speakers

Conference and Programme Chairs



Professor Fernando Moreira has been a member of the Science and Technology Department at Portucalense University since 1992, currently as a Full Professor, and a visiting professor at the University of Porto Business School. He was the head of the Science and Technology Department from May 2018 until February 2022. He is graduated in Computer Science (1992), M.Sc. in Electronic Engineering (1997) and PhD in Electronic Engineering (2003), both at the Faculty of Engineering of the University of Porto and Habilitation (2018). He teaches subjects related to undergraduate and post-graduate studies. He supervises several PhD and M.Sc. students. He is a (co-)author of more than 200 scientific publications with peer-review on national and international journals and conferences. He serves as a member of the Editorial Advisory Board for several journals and books. He organized several special issues from JCR journals. He has already regularly served as a member of Programme and Scientific committees of national and international conferences. He was the MSc in Computation coordinator during the last ten years. He holds editorial experience, and he is co-editor of several books. He is associated with NSTICC, ACM and IEEE. His principal research areas are mobile computing, ICT in Higher Education, Mobile learning, Social business and Digital transformation. He was awarded Atlas Elsevier Award in April 2019



Shital Jayantilal is the Head of the Department of Economics and Management at Portucalence University. She lectures under graduate and graduate courses in Strategy and Strategic Management. She has a PhD in Business Studies from Extermadura University (2016) and a degree in Economics from the Faculty of Economics, University of Porto (1999). She is also a practitioner and an experienced Senior consultant, with more than 15 years hands-on experience in aiding more than 50 SMEs and family firms, across diverse industries promoting their sustainability and enhancing trans-generational family business wealth. She is a member of the research unit REMIT – Research on Economics, Management and Information Technologies, Porto. Her main topics of research are Family Firms; Strategy and Game Theory, and she has published in various international journals. She has been awarded the 2021 Schulze Publication award by Entrepreneurship and Innovation Exchange and Family Business editorial teams.

Keynote Speakers



DCarlos Brito is the president of the Order of Economists – North, a marketing professor at Porto Business School, president of the Portuguese Management Association, president of the Port Wine Observatory, director of APCER Brazil, a member of the board of SEDES Porto, a member of the board of the Santa Casa da Misericórdia do Porto, and a member of the Strategic Council of the Porto and North Tourism Association, in addition to participating in several advisory boards. Author of eight books on management and marketing and a regular presence in the media, he is frequently invited as a speaker and motivational speaker to address topics of marketing, innovation, and entrepreneurship. Between 2011 and 2018, he was Pro-Rector of the University of Porto and, between 2019 and 2021, Vice-Rector of the Portucalense University. He holds a PhD in Marketing from the University of Lancaster (UK), an MBA from Nova University of Lisbon, and a degree in Economics from the University of Porto. He has additional training through the Entrepreneurship & Innovation programs at Babson College in Boston (USA) and the Education Leadership program at Case Western Reserve University in Cleveland (USA)



Sital Ruparelia is the Founder of Talent X Tech, a consultancy at the intersection of talent, technology, and leadership. With 25+ years of experience across financial services in London and technology across Asia Pacific, including a decade at Microsoft leading executive talent acquisition during the company's cloud and culture transformation, Sital brings deep practitioner insight into how organisations build future-ready teams and leaders in the age of AI. He advises senior leaders and organisations across Asia and globally, publishes the Talent X Tech newsletter and podcast, and speaks on leadership, the future of work, and career reinvention.

Mini Track Chairs



Sofia Gomes, an associate professor at the Department of Economics and Management at the Portucalense University (UPT) of Porto and an adjunct professor at the Higher Institute of Business and Tourism Sciences (ISCET). She holds a PhD in Applied Economics from the University of Santiago de Compostela and a PhD in Strategic Management and International Business from the University of Seville.She worked for 10 years as a financial risk analyst at a Portuguese bank. She is an integrated researcher at REMIT – Research in Economics, Management and Information Technologies, and the coordinator of the research line "Territories and Organizations for Sustainable Development" (TODS) at REMIT. She has publications in peer-reviewed journals and serves as a reviewer Her research interests focus mainly on entrepreneurship, innovation, sustainability and the circular economy.



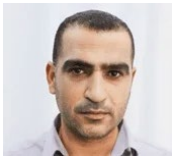
Elisabete Nogueira, Assistant Professor in the Department of Economics and Management at Universidade Portucalense. She holds a PhD in Business Sciences and is an integrated researcher at REMIT – Research on Economics, Management and Information Technologies. Her research focuses on sustainability, triple bottom line performance, circular economy, digital transformation, and artificial intelligence in organisational and consumer contexts. She has contributed to the fields of sustainable development, resource efficiency, and responsible innovation. Her work bridges management, governance, and technological transformation, with particular attention to how organisations integrate sustainability and digitalisation to enhance performance and long-term value creation.



Dr Tatiana Gladkikh is Lecturer in Management at the University of Aberdeen Business School. As an academic and consultant, she has worked the UK, Russia, Europe, the Middle East and South-East Asia. Her research is focussed on cross-cultural leadership, cross-cultural issues in the global business environment, and luxury end of tourism. Her latest edited book Co-creating Luxury Customer Experiences in Tourism: Exploring the Superyacht Market was published by Palgrave Macmillan in January 2026. Tatiana is an associate editor of The Journal of Management Development. She is a Senior Fellow of the Higher Education Academy (SFHEA) and a Member of the Chartered Institute of Linguists (MCIL).



Fred H. Strønen is associate professor at Oslo Business School, OsloMet – Oslo Metropolitan University. He has a Ph.D. within strategy and organization from Copenhagen Business School and Norwegian School of Management BI, and he likes teaching. Strønen has published in various international journal on topics as business strategy, AI/digitalization, dynamic capabilities, strategic leadership, innovation, learning and industry structure. Strønen has extensive experience in working with strategic and managerial development, for larger public and private organizations in Norway. In his leisure time Strønen enjoys biking and skiing.



Mohamad Rjoob is a PhD researcher at Al-Quds University, specializing in Educational Management and Leadership. His research focuses on transformational leadership, the impact of leadership styles on organizational performance, and the dynamics of educational administration during crises and emergencies. Mohamad is an active member of the academic community, serving as a peer reviewer for international conferences and journals. He is committed to exploring the intersection of modern management theories and digital transformation in educational environments.

ECMLG Review Committee

Prof Rute Abreu, Guarda Polytechnc Institute, Portugal, Dr Małgorzata Patrycja Adamska, Opole University of Technology, Poland, Prof Grigorescu Adriana, NUPSPA; IEF Romanian Academy, Romania, Dr Ghayur Ahmad, Prince Muhammad Bin Fahd University, Saudi Arabia, Dr Mohd Shahril Ahmad Razimi, Northern University of Malaysia, Malaysia, Dr Noor Ahmed, Begum Nusrat Bhutto Women University Sukkur, Pakistan, Prof Susana Aldeia, Universidade Portucalense, Portugal, Dr Saad Aldoihi, KACST, Saudi Arabia, Dr Morariu Alunica, "Stefan cel Mare" University of Suceava, Faculty of Economics and Public Administration, Romania, Prof Maria Ceu Alves, University of Beira Interior, Portugal, Dr Sanaullah Ansari, Shaheed Zulfikar Ali Bhutto Institute of Science and Technology (SZABIST), Pakistan, Prof Doutora Marina Godinho Antunes, ISCAL - Instituto Superior de Contabilidade e Administração de Lisboa, Portugal, Prof Lina Artemenko, National Technical University of Ukraine "Igor Sikorsky Kyiv Politechnical University", Ukraine, Ahmet Aykac, Theseus Business School, Lyons, France, Dr Daniel Badulescu, University of Oradea, Romania, Dr Afsaneh Bagheri, Faculty of Entrepreneurship, University of Tehran, Iran, Lecturer Sundus Baig, BPP University, United Kingdom, Dr Samira Bakr, NCEEE, Egypt, Prof Joan Ballantine, Ulster University, UK, Dr Neeta Baporikar, Harold Pupkewitz Graduate School of Business (HP-GSB), Namibia, Prof Dimitrios Belias, University of Thessaly, Larissa, Geopolis, Greece, Prof Andrea Bencsik, University of Pannonia, Hungary, Svein Bergum, Lillehammer University College, Norway, Dr Madeleine Block, University Bielefeld, Germany, Constantin Bratianu, Bucharest University of Economic Studies, Romania, Dr Marta Bubicz, Lusófona University, Portugal, Prof Ivana Bulog, Faculty of Business, Economic and Tourism, University of Split, Croatia, Prof Felicjan Bylok, Technical University of Czestochowa, Poland, Prof Kiymet Tunca Caliyurt, Trakya University - Faculty of Business Administration and Economics, Turkey, Prof Sven Carlsson, Lund University, Sweden, Dr Ondrej Castek, Faculty of Economics and Administration, Masaryk University, Czech Republic, Dr Walter Castelnovo, Università dell'Insubria, Como, Italy, Dr Francisca Castilla-Polo, University of Jaén, Spain, Prof Ricardo Cayolla, Portucalense University, Portugal, Prof Prasenjit Chatterjee, MCKV, India, Prof George Chiladze, The University of Georgia, Georgia, Dr Sudhinder Singh Chowhan, IIHMR University Jaipur, India, Dr Roila Christakou, Eurobank, Greece, Dr Mei-Tai Chu, La Trobe University, Australia, Dr Leszek Cichobłaziński, Częstochowa University of Technology, Poland, Simona Činčalová, College of Polytechnics Jihlava, Czech Republic, Prof Oscarina Conceição, Polytechnic University of Cávado and Ave (IPCA), Portugal, Prof Teresa Costa, Instituto Politécnico de Setúbal, Portugal, Dr Miguel de Castro Neto, ISEGI, Universidade Nova de Lisboa, Portugal, Dr Benny M.E. De Waal, University of Applied Sciences Utrecht, The Netherlands, Andrew Deegan, University College Dublin, Ireland, Assistant Professor Reza Dehghan, Islamic Azad University, Iran, Assistant Professor Reza Dehghan, Islamic Azad University, North Tehran Branch, Iran, Prof Sri Ranjan Dharmakeerthi Sri Ranjan, G.D., Sri Palee Campus, University of Colombo, Sri Lanka, Dr Mihela Diaconu, The Gheorghe Asachi Technical University of Iasi, Romania, Prof Ana Dinis, School of Management - Polytechnic University of Cávado and Ave, Portugal, Dr Hichem Dkhili, Faculty of Economics and Management of Jendouba, University of Jendouba, Tunisia, Mr Puspanathan Doraisingam, INTI International University, Malaysia, Dr Maria José Palma Lampreia Dos-Santos, Polytechnic University of Lisbon, LIACOM, ISCTE-IUL DINÂMIA´CET, Portugal, Dr Maria José Palma Lampreia Dos-Santos, Escola Superior de Comunicação Social, Portugal, Prof Philip Dover, Babson College, USA, Prof Márcia Duarte, Polytechnic University of Cávado and Ave, Portugal, Dr Th Economides, Neapolis University Pafos, Cyprus, Emmanuel Innocents, Tshwane University of Technology, South Africa, Luisa Errichiello, Italian National Research Council (CNR), Italy, Dr Mercy Escalante Ludena, Anhmebi Morumbi University, Brazil, Dr João Farinha, ISLA Santarém - Polytechnic University, Portugal, Prof Liliana Feleaga, Academy of Economic Studies (ASE), Romania, Prof Cristina Feniser, Technical University of Cluj Napoca, Romania, Prof Paula Fernandes, Polytechnic Institute of Bragança & UNIAG, Portugal, Jorge Ferreira, Nova University of Lisbon, Portugal, Dr Pedro Ferreira, University of Aveiro, Portugal, Dr Zair Firdaous, Morocco, Dr Marzena Frankowka, University of Szczecin, Poland, Prof Elisabete G.S. Félix, University of Évora, Portugal, Dr Andreas Gadatsch, Bonn-Rhein-Sieg University of Applied Sciences, Germany, Ass Prof Balan George, Romanian-German University, Romania, Dr Tatiana Gladkikh, The University of Winchester, UK, Prof Valerie Priscilla Goby, Zayed University, Dubai, UAE, Dr Diogo Goes, Instituto Superior de Administração e Línguas, Portugal, Prof Sofia Gomes, Portucalense University, Portugal, Prof Jorge Gomes, Universidade Lusófona Lisboa, Portugal, Prof Paulo Gonçalves, Polytechnic Institute of Porto, ISCAP, Portugal, Dr Iwona Gorzeń-Mitka, Czestochowa University of Technology, Poland, Prof Ken Grant, Ryerson

University, Toronto, Canada, Dr Aleksandra Grobelna, Gdynia Maritime University, Poland, Prof Antonio Guerreiro, University of Évora, Portugal, Prof Niraj Gupta, Indian Institute of Corporate Affairs, India, Dr Noor Ul Hadi, Prince Mohammad Bin Fahd University, Saudi Arabia, Dr Hossein Hakimpour, Islamic Azad University Birjand Branch, Iran, Dr Mahmoud Hassanin, Ahram Canadian University, Egypt, Agi Syarif Hidayat, Universitas Gadjah Mada and Universitas Swadaya Gunung Jati, Indonesia, Prof Graciete Honrado, Instituto Politécnico de Tomar, Portugal, Dr Saadia Irfan, National University of Sciences and Technology, Pakistan, Dr Md Enamul Islam, Association of Social Science Research, Bangladesh, Dr Md Enamul Islam, RAJUK Uttara Model College, Bangladesh, Dr Dembińska Izabela, University of Szczecin, Poland, Martina Jakábová, Visions S.R.O., Slovakia, Assc Rossilah Jamil, Universiti Teknologi Malaysia, Malaysia, Dr Shital Jayantilal, Universidade Portucalense, Portugal, Dr Nalla Bala Kalyan, Sri Venkateswara College of Engineering, Tirupati, India, Research Scientist Paul Kamal Chandra, Global Research Centre, Malaysia and Bangladesh, Dr Meenakshi Kaushik, Lloyd Group of Institutions, India, Dr N.V. Kavitha, St Ann's College for Women, India, Mr SeyedAmirhesam Khalafi, University of Houston, USA, Prof Tatiana Khvatova, Emlyon Business School, France, Associate Professor Joanna Kizielewicz, Faculty of Management and Quality Science, Poland, Prof Joanna Kizielewicz, Gdynia Maritime University, Poland, Maria Knecht-Tarczewska, Wroclaw College of Management "Edukacja", Poland, Prof Jesuk Ko, Universidad Mayor de San Andres, Bolivia, Jolanta Kowal, College of Management and Wroclaw University, Poland, Dr Ewa Kraska, Jan Kochanowski University of Kielce, Poland, Prof Ibrahim Krasniqi, University for Business and Technology, Kosovo, Aleksandra Kwiatkowska, College of Management and Wroclaw University, Poland, Prof Abdelmjid Lafram, School of Information Sciences ESI-Rabat, Morocco, Dr Anna Lemańska-Majdzik, Czestochowa University of Technology, Poland, Prof Kátia Lemos, School of Management - Polytechnic Institute of Cávado and Ave, Portugal, Dean Mieczysław Leniartek, Technical University in Cracow, Poland, Dr Yong-Kwan (JoAnne) Lim, Singapore University of Social Sciences, Singapore, Dr Vanessa Liu, The Hong Kong Polytechnic University, China, Prof Joao Alexandre Lobo Marques, University of Saint Joseph, Macau, Prof Felipa Lopes dos Reis, Lusófona University, Portugal, Prof Sam Lubbe, NWU, South Africa, Dr Camelia Luliana Lungu, Academy of Economic Studies, Bucharest, Romania, Dr Łukasz Mach, Opole University of Technology, Poland, Paolo Magrassi, Polytechnique of Milan, Italy, Prof Isabel Maldonado, ISCAP.PP, Portugal, Dr Arkadiusz Malkowski, Faculty of Economic, Poland, Arjen Maris, HU University of Applied Sciences Utrecht, The Netherlands, Bill Martin, RMIT, Australia, Assc Carla Martinho, Lisbon Accounting and Business School, Portugal, Prof Nico Martins, University of South Africa, South Africa, Dr Milos Maryska, Prague University of Economics and Business, Czech Republic, Dr Florinda Matos, Iscte - Instituto Universitário de Lisboa, Portugal, Rija Maurizo, University of Calabria, Italy, Mr Mohd Shamsuri Md Saad, Universiti Teknikal Malaysia Melaka, Malaysia, Prof Luis Mendes, Beira Interior University, Portugal, Prof Tamara Menichini, University of Rome "Niccolò Cusano", Italy, Dr Anesu Mironga, Africa University, Zimbabwe, Mr Akhil Mittal, Synopsys, USA, Ms Hezlina Mohd Hashim, Universiti Teknologi Petronas, Malaysia, Prof Mónica Monteiro, Universidade Portucalense, Portugal, Prof Pedro Ribeiro Mucharreira, University of Lisbon, Portugal, Dr Gunilla Myreteg, Örebro University School of Business, Sweden, Timothy Nichol, Liverpool Business School, LJMU, UK, Prof Hester Nienaber, Unisa (Retired), South Africa, Dr Hester Nienaber, University of South Africa, South Africa, Dr Nik Mohd Norfadzilah Nik Mohd Rashid, Universiti Sultan Zainal Abidin, Malaysia, Assc Sónia P. Nogueira, Polytechnic Institute of Bragança, Portugal, Prof Elisabete Nogueira, Portucalense University, Portugal, Dr Melao Nuno, Polytechnic Institute of Viseu, Portugal, Dr Catalina Olivas, Tecnológico de Monterrey, Mexico, Prof Elsa Catalina Olivas Castellanos, Tecnológico de Monterrey, Mexico, Luciana Oliveira, Polytechnic of Porto, Portugal, Ass Prof Dr Abdelnaser Omran, Universiti Utara Malaysia, Malaysia, Dr Roslina Othman, International Islamic University Malaysia, Malaysia, Dr Nayantara Padhi, Indira Gandhi National Open University, India, Dr Xavier Parisot, IKI-SEA, Thailand, Dr Stavros Parlalis, Frederick University, Cyprus, Prof Chintan Patel, Adani Institute of Digital Technology Management, India, Dr Shaun Pather, University of the Western Cape, South Africa, Prof Manuel Sousa Pereira, IPVC, Portugal, Dr Danilo Piaggesi, Framericas, USA, Dr Maryna Pichugina, Igor Sikorsky KPI, Ukraine, Prof Rui Pimenta, P.PORTO-ESS, Portugal, Florina Pinzaru, The College of Management - NSPSPA, Romania, Prof Peter Pisár, University of SS Cyril and Methodius in Trnava, Slovakia, Dr John Politis, Charles Darwin University, Australia, Adina Simona Popa, "Eftimie Murgu" University of Resita, Romania, Dr Cosmin Popa, The University of Agricultural Sciences and Veterinary Medicine, Romania, Prof Sheila Puffer, Northeastern University, USA, Senthamil Raja, Pondicherry University, India, Dr Pascal Ravesteijn, HU University of Applied Sciences, The Netherlands, Dr Marcin Relich, University of Zielona Gora, Poland, Assc Metin Reyhanoglu, Hatay Mustafa Kemal University, Turkey, Assistant Professor

Dehghan Reza, Islamic Azad University, North Tehran Branch, Iran, Researcher Mohamad Rjoob, Riphah International University, Palestine, Mohamad Rjoob, Ministry of Education, Palestine, Prof José Carlos Rouco, Universidade Lusófona, Portugal, Prof Agnieszka Rzepka, Lublin University of Technology, Poland, Prof Abdel-Badeeh Salem, Ain Shams University, Egypt, Lele Sang, Wharton School, University of Pennsylvania, USA, Amitrajit Sarkar, Christchurch Polytechnic Institute of Technology, New Zealand, Dr Abdullah Sarwar, Multimedia University, Malaysia, Dr Ousanee Sawagvudcharee, Liverpool John Moores University, Thailand, Dr Elena Seghedin, Alexandru Ioan Cuza University, Romania, Kakoli Sen, Institute for International Management and Technology, India, Dr Armin Shams, Sharif University of Technology, Iran, Assc Eriona Shtembari, University of New York Tirana, Albania, Irma Shyle, Polytechnic University of Tirana, Albania, Dr MD Abubakar Siddique, Abu Dhabi University, UAE, Dr Gourida Siham, Djelfa University, Algeria, Prof Susana Silva, School of Hospitality and Tourism, Polytechnic Institute of Porto, Portugal, Prof Maria Gabriela Silva, ISCTE-University Institute of Lisbon, Portugal, Prof Natacha Silva, IPB, Portugal, Prof Lúcia de Fátima Silva Piedade, Universidade Lusófona, Portugal, Dr Raj Singh, University of Riverside, USA, Dr Katarzyna Skrzeszewska, Gdynia Maritime University, Poland, Dr Roy Soh, Albukhary International University, Malaysia, Dr Lew Sook Ling, Multimedia University, Malaysia, Dr Maria Jos Sousa, Universidade Europeia, Portugal, Dr Riccardo Spinelli, Universita di Genova, Italy, Dr Ada Spiru, Barleti University, Albania, Mr David Stewart, RYP International, Australia, Fred Strønen, Oslo Metropolitan University, Norway, John Sullivan, University of South Florida, USA, Prof Reima Suomi, University of Turku, Finland, Dr Dalia Susniene, Kaunas University of Technology, Lithuania, Dr Hamed Taherdoost, Hamta Group, Malaysia, Dr Safdar Husain Tahir, Govt. College University Faisalabad, Pakistan, Assc Mohammad Talha, Prince Mohammad Bin Fahd University, Saudi Arabia, Ramayah Thurasamy, Universiti Sains Malaysia, Malaysia, Dr Xuemei Tian, Swinburne University, Australia, Dr Piotr Tomski, Czestochowa University of Technology, Poland, Dr Tiago Trancoso, IPVC, Portugal, Prof Roberta Troisi, University of Salerno, Italy, Dr Mirosława Wawrzak-Chodaczek, Institute of Pedagogy, Wrocław University, Poland, Dr Lugkana Worasinchai, Bangkok University, Thailand, Dr Zulnaidi Yaacob, Universiti Sains Malaysia, Malaysia, Tuan Yu, Kent Business School, University of Kent, UK, Asst Prof Nurul Mohammad Zayed, Daffodil International University, Bangladesh, Dr Sanja Zivkovic, Heartist Center, Croatia, Dr Justyna Żywiołek, Czestochowa University of Technology, Poland, Dr Lenka Labudová, UCM Trnava, Slovakia

The Human Side of Digital School Leadership: A Dynamic Digital Leadership Competency Framework for School Leaders

Mohd Yusof Abd Manan, Fanny Kho Chee Yuet and Dayang Rafidah Syariff M. Fuad
Universiti Pendidikan Sultan Idris, Tanjong Malim, Malaysia

fannykcy@fpe.upsi.edu.my
P20231000751@siswa.upsi.edu.my
dayang@fpe.upsi.edu.my

Abstract: The rapid digitalization of schooling has heightened the emotional, psychological and ethical demands on school leaders, who must now serve as digital change agents while sustaining staff wellbeing and engagement. Existing digital leadership models are often overly technical or tool-oriented and underplay the human side of digital transformation, especially in systems with uneven digital readiness and rising performance pressures. This paper addresses that gap by proposing a dynamic digital leadership competency framework that foregrounds emotional, ethical and instructional dimensions and offers a human-centred lens on digital change. The framework is grounded in an integrative review of research on digital leadership, instructional leadership, emotional intelligence and competency modelling, complemented by insights from an earlier design and development research (DDR) project on digital leadership among Malaysian secondary school principals. It comprises a core domain, Self and Ethical Digital Leadership, and three interrelated outer domains: Visionary and Strategic Digital Leadership, Instructional and Learning-Focused Digital Leadership, and Data-Informed and Innovation-Oriented Digital Leadership. The core domain highlights leaders' self-awareness, emotional regulation, resilience and ethical use of technology and data as foundations for credible and sustainable digital change. Attending to this human core reshapes how digital leadership is enacted at strategic, instructional and innovation levels, with implications for teacher wellbeing, organisational culture and school climate. The framework offers scholars, policymakers and professional development providers a theoretically grounded, practice-oriented tool for strengthening the human side of digital school leadership.

Keywords: Digital school leadership, Emotional intelligence, Wellbeing and resilience, Digital transformation in education, Leadership competency framework

1. Introduction

The digital era has reshaped school leadership in ways that go beyond managing devices, platforms and data systems. School leaders are now expected not only to guide digital adoption, but also to protect trust, sustain wellbeing and preserve the quality of teaching and learning. Digital transformation in schools is therefore not merely a technical process; it is also emotional, relational and ethical work. Principals must respond to technostress, digital fatigue, shifting teacher expectations, responsible data use, online safety and equity of access, all while managing work-life pressures that became more visible during and after the COVID-19 period. In Malaysia, these pressures intersect with national policy agendas such as the Malaysia Education Blueprint 2013-2025 and the Malaysia Digital Economy Blueprint, both of which promote ICT integration, educational quality, equity and secure digital ecosystems (Kementerian Pendidikan Malaysia, 2013; Economic Planning Unit, 2021). Yet policy ambition alone does not guarantee change: improvement depends on teacher professional development, ICT competence, infrastructure and a sense of ownership among teachers (Zainal & Zainuddin, 2020).

In the context of Education 4.0, digital leadership is increasingly seen as a blend of communication, pedagogy, responsiveness to change and readiness to address barriers such as technophobia, limited access and skill gaps (Dasruth & Naicker, 2026). This points to the need to understand digital leadership not only in terms of systems and tools, but also as a form of leadership requiring emotional, relational and resilience-based capacities. Research on emotional intelligence supports this view by linking self-awareness, empathy and relationship management with teacher wellbeing, instructional quality, collective efficacy and school climate (Sasere & Matashu, 2025). These issues are especially significant in systems where digital readiness remains uneven; during COVID-19, students in geographically uneven regions experienced poor connectivity, weak infrastructure and unconducive learning conditions (Jafar et al., 2022). Recent studies link principals' digital leadership and teachers' digital pedagogy with digital citizenship and identify competencies such as digital vision, culture, professional development, safety and resilience (Hamzah et al., 2021; Nubun et al., 2024; Mohd Tahir et al., 2025).

Taken together, this work shows growing recognition of digital school leadership, but also a continuing conceptual gap: existing discussions do not sufficiently integrate ethical, emotional, instructional and

innovation-oriented dimensions into a coherent competency framework. This paper addresses that gap by proposing a Dynamic Digital Leadership Competency Framework that places the human side of leadership at the centre while still recognising strategic and instructional demands. In doing so, the paper contributes by shifting attention from tools to human-centred competencies, offering a practical framework for leadership development and linking digital transformation with wellbeing, ethics, instructional improvement and data-informed innovation in unequal and changing contexts.

2. Literature Review

2.1 Digital School Leadership and Instructional Leadership

Digital school leadership is increasingly understood as the strategic, pedagogical and ethical use of digital technologies to advance organisational and learning goals, rather than as narrow ICT management alone (Zhong, 2017; Sheninger, 2019; Dasruth & Naicker, 2026). The literature shows a gradual shift from seeing principals mainly as infrastructure managers to recognising them as leaders who intentionally integrate digital platforms, data and emerging technologies into teaching, assessment and administration (McLeod & Richardson, 2011; Kafa & Pashiardis, 2019). In the context of Education 4.0, digital leadership increasingly overlaps with instructional leadership because principals are expected to support technology-rich pedagogy, teacher professional learning and evidence-informed classroom improvement (Dasruth & Naicker, 2026). Digital learning cultures remain uneven, shaped by infrastructure, training and teacher readiness, while digital citizenship shapes teachers' digital pedagogy (Hamzah et al., 2021; Okunlola & Naicker, 2025; Kafa & Pashiardis, 2019). Overall, digital school leadership is better understood as a broader, human-centred form of leadership that shapes school vision, pedagogy, culture and organisational learning through technology (McLeod & Richardson, 2011; Dasruth & Naicker, 2026).

2.2 Emotional Intelligence, Wellbeing and the Human Side of Leadership

A recurring weakness in digital leadership literature is the limited treatment of emotional and relational dimensions. Research on emotional intelligence consistently shows that leaders' self-awareness, empathy and relationship management matter for teacher wellbeing, school climate and leadership quality, particularly in environments shaped by rapid technological change (Sasere & Matashu, 2025). Digital transformation often changes not only work processes but also the emotional experience of work: new platforms, data demands and constant adaptation can create strain, especially when teachers differ in confidence, support and readiness. In such settings, emotionally attuned leadership becomes essential, helping leaders recognise pressure, communicate change sensitively and sustain trust while schools adapt.

2.3 Competency Modelling for Digital Leadership

Competency modelling defines competencies as integrated combinations of knowledge, skills, attitudes and values supporting effective practice and professional growth (Spencer & Spencer, 1993; Leithwood et al., 2004). Digital leadership standards commonly emphasise visionary leadership, digital learning culture, professional practice, systemic improvement and digital citizenship (International Society for Technology in Education [ISTE], 2009; Zhong, 2017). In South Africa, Dasruth and Naicker (2026) propose an Education 4.0-oriented framework covering foundational digital practices, digital teaching and communication, and contextual responsiveness, but it still weighs structural and technical practices more heavily than emotional and relational competencies. Malaysian studies similarly identify competencies such as digital vision, culture, professional development, safety and resilience, but many remain strongly ICT-oriented with limited attention to instructional and human-centred dimensions (Hamzah et al., 2021; Nubun et al., 2024; Mohd Tahir et al., 2025).

2.4 Synthesis and Gaps

Taken together, digital school leadership shapes vision, pedagogy, culture and organisational learning through technology (McLeod & Richardson, 2011; Dasruth & Naicker, 2026), yet the human side of leadership remains underdeveloped despite evidence that emotional intelligence and relational capability sustain teacher engagement, instructional quality and school resilience during digital change (Harms & Credé, 2010; Sasere & Matashu, 2025). Current models privilege technical and structural dimensions, give limited treatment to instructional leadership, and insufficiently reflect the context-sensitive nature of digital leadership in systems with uneven readiness (ISTE, 2009; Okunlola & Naicker, 2025; Kafa & Pashiardis, 2019). In Malaysia, there is still no competency framework that explicitly integrates leadership, technology and emotional-relational dimensions while placing the human core at the centre of vision, pedagogy and data-informed innovation

(Hamzah et al., 2021; Nubun et al., 2024). This gap provides the basis for the framework proposed here. Table 1 substantiates the framework's novelty against the three closest models. ISTE (2018) and Malaysian models (Hamzah et al., 2021; Nubun et al., 2024) treat safety or resilience as discrete items rather than as an emotional-ethical core shaping other domains; Dasruth and Naicker (2026) attend more to instructional practice but remain weighted toward technical readiness over inner leader capacities. This confirms that existing frameworks under-integrate emotional-ethical and instructional-strategic dimensions.

Table 1: Framework Comparison

Framework	Core Focus	Human/Ethical Core	Novelty Gap
ISTE (2018)	Vision, culture, citizenship	Implicit only	No structural emotional core
Dasruth & Naicker (2026)	Digital teaching, readiness	Weak; technical bias	No dynamic mechanism
Malaysian models (2021; 2024)	Vision, safety, resilience	Resilience noted only	ICT-oriented; no integration
Proposed framework	Self-Ethical core + 3 domains	Explicit, theory-grounded	Dynamic feedback loop

3. Methodology

This article adopts a conceptual methodology to develop a human-centred framework of dynamic digital leadership competencies for Malaysian secondary school principals. Rather than generating new primary data, it synthesises theoretical and empirical insights from previous scholarship and from an earlier Design and Development Research (DDR) project to produce a framework that is context-sensitive, conceptually coherent and open to future testing.

3.1 Conceptual and Integrative Approach

This review followed a purposive, non-systematic conceptual synthesis approach rather than a systematic literature review, a deliberate choice because the objective was theoretical integration across four distinct fields rather than exhaustive coverage of a single empirical question (Torraco, 2016). Sources were retrieved primarily from Scopus, ERIC and Google Scholar, covering publications from 2009 to 2026, using combinations of the search terms "digital leadership", "instructional leadership", "emotional intelligence", "competency framework", "school principal" and "Malaysia". Priority was given to peer-reviewed articles, established standards (ISTE, 2018) and Malaysian policy documents; sources without direct relevance to school leadership were excluded. Because the paper's contribution is theoretical rather than empirical, the review prioritises conceptual saturation over exhaustiveness: sources were added until no further distinct constructs relevant to the four proposed domains emerged. The study reorganises existing scholarship into a digital leadership competency framework for secondary schools by undertaking an integrative review across digital leadership, instructional leadership, emotional intelligence and wellbeing, and competency modelling (Goleman et al., 2022; ISTE, 2018; Shin et al., 2023), drawing also on adaptive and transformational leadership perspectives and current Malaysian digital education priorities (Heifetz et al., 2009; Kementerian Pendidikan Malaysia, 2023; Lloyd, 2021).

3.2 Design and Development Research Insights

The conceptual was further informed by an earlier DDR project on principals' digital leadership competencies in Malaysia, in which a model was developed and validated through qualitative needs analysis, Fuzzy Delphi expert review and quantitative structural validation (Azman et al., 2022; Richey & Klein, 2007). In this article, those earlier findings are not re-analysed as new data; instead, they function as sensitising concepts that strengthen the relevance of domains such as self-related competencies, visionary leadership, professional and productivity competencies, and ethics and integrity, while grounding the framework in school realities and current policy demands (Kementerian Pendidikan Malaysia, 2023; Nubun et al., 2024; Ahmad et al., 2022). Three distinctions clarify the boundary between the earlier DDR project and the present paper. First, the DDR project produced a validated competency model derived from qualitative needs analysis and Fuzzy Delphi consensus (Azman et al., 2022); this model is treated purely as an empirical anchor, not as the object of new

analysis. Second, four DDR constructs — self-related competencies, visionary leadership, professional and productivity competencies, and ethics and integrity — are carried forward as sensitising concepts because they were empirically grounded in the Malaysian school context. Third, and most importantly, the four-domain structure proposed here, together with its human-centred core and sensing-seizing-transforming dynamic, is original to this conceptual synthesis: it reorganises the DDR constructs alongside literature on emotional intelligence, instructional leadership and digital leadership standards into an architecture the DDR project did not propose. In short, the DDR project supplies contextual raw material, while the architecture, integration logic and human-centred framing presented here are new contributions of this paper.

3.3 Synthesis Process

The synthesis followed three steps. First, definitions, constructs and indicators drawn from the review domains, policy documents and the earlier DDR model were mapped to identify convergence, divergence and overlap (Creswell & Creswell, 2018; Rumeli & Md Rami, 2023). Second, these elements were grouped into core and supporting domains of digital leadership competence. Third, the framework was refined around a human-centred orientation that places the principal's self and ethical core at the centre of digital leadership practice, aligning it with wellbeing, emotional intelligence and current digital policy priorities such as equity, responsible leadership and sustainable school transformation (Van Wart et al., 2019; Goleman et al., 2022; Kementerian Pendidikan Malaysia, 2023; Li et al., 2024). Because the article is conceptual, no statistical analysis is reported; the outcome is a framework intended for future operationalisation and empirical testing (Creswell & Plano Clark, 2018; Richey & Klein, 2007).

4. The Dynamic Human-centred Digital Leadership Competency Framework

This article proposes the Dynamic Human-Centred Digital Leadership Competency Framework as a conceptual response to the need for a more balanced understanding of digital school leadership in Malaysia. The framework starts from the view that effective digital leadership depends not only on technical competence, but also on strategic direction, instructional improvement, emotional intelligence and ethical judgement, such that digital leadership is understood as a dynamic and relational practice in which the principal's human core shapes how technology is interpreted and used in school transformation (Raman et al., 2019; Rumeli & Md Rami, 2023).

4.1 Structure of the Framework

The framework comprises one core domain, Self and Ethical Digital Leadership, and three outer domains: Visionary and Strategic Digital Leadership, Instructional and Learning-Focused Digital Leadership, and Data-Informed and Innovation-Oriented Digital Leadership. Together, these domains reflect the view that digital leadership is not a set of isolated technical tasks, but an interaction between inner capacities and outward practices related to vision, instruction, data and innovation (ISTE, 2018; Van Wart et al., 2019; Ojo & Naicker, 2025). The core domain acts as the human centre of the framework, giving direction, ethical grounding and emotional stability to decisions made in the outer domains (Goleman et al., 2022; Ahmad et al., 2022).

The framework is described as dynamic rather than static because the relationship between the core domain and the three outer domains operates through an ongoing cycle of sensing, seizing and transforming, concepts adapted from dynamic capabilities theory in strategic management (Teece et al., 1997; Teece, 2007). Sensing refers to self-awareness and emotional attunement that allow leaders to detect early signs of staff readiness or strain before these surfaces as visible problems. Seizing refers to the ethically grounded decisions leaders make once a need is sensed, translating awareness into concrete action. Transforming refers to the leader's capacity to regulate emotion and sustain resilience while reconfiguring practices, policies or routines as digital initiatives evolve. Crucially, this cycle is bidirectional: outcomes from the outer domains — strategic strain, instructional setbacks or data-related pressure — feed back into the core domain and reshape the leader's self-understanding and ethical position over time (Helfat & Peteraf, 2015). This reciprocal movement, rather than a fixed hierarchy of domains, constitutes the dynamic character of the framework. Figure 1 presents the framework, showing the sensing-seizing-transforming cycle and the reciprocal feedback pathways linking the human-centred core to the three outer domains.

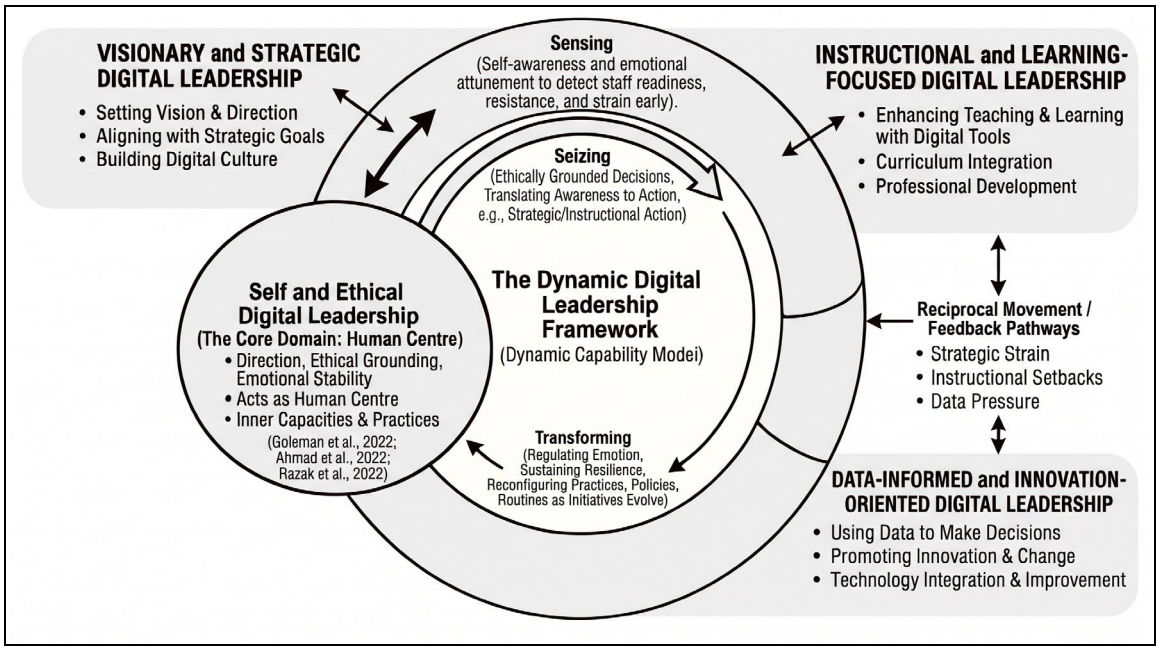


Figure 1: The Dynamic Digital Leadership Framework

4.2 Self and Ethical Digital Leadership

This foundational domain refers to the principal's capacity to recognise personal digital strengths and limitations, regulate emotions under technological pressure, act responsibly in the use of technology and data, and care for personal and collective wellbeing in the school community (Goleman et al., 2022; Batool, 2013). It draws on literature showing that emotional intelligence strengthens relationships, school climate and ethical action by helping leaders perceive, understand and regulate emotions effectively (Mayer & Salovey, 1997; Cherniss, 2000; Venter et al., 2024). In practice, this domain is visible when principals acknowledge stress linked to new systems, create space for honest dialogue and make decisions attentive to morale, inclusion, privacy and digital wellbeing (Aziz & Yusof, 2022; Ertiö et al., 2024; Kementerian Pendidikan Malaysia, 2023).

4.3 Visionary and Strategic Digital Leadership

This domain concerns the principal's ability to build a clear, future-oriented, human-centred digital vision for the school, aligning digital initiatives with policy expectations and local needs while keeping strategic choices educationally meaningful and emotionally sustainable for staff (ISTE, 2018; Kementerian Pendidikan Malaysia, 2023). Principals who communicate a coherent digital vision and connect it to shared goals are more likely to secure staff commitment and support student outcomes (Lim & Tan, 2023). In human-centred terms, strategic leadership also involves co-creating the vision with teachers, responding to concerns through dialogue and keeping ambition grounded in school readiness, teacher confidence and student need (Thannimalai & Raman, 2018; Aziz et al., 2022).

4.4 Instructional and Learning-focused Digital Leadership

This domain links digital leadership directly to teaching, learning and professional development, emphasising the principal's responsibility to ensure technology serves pedagogy and student learning rather than functioning as an administrative or symbolic tool (Raman et al., 2019). Principals' emotional intelligence is positively associated with instructional leadership practices such as supervising teaching, coordinating curriculum and supporting student learning (Venter et al., 2024; Chen & Guo, 2018). Accordingly, this domain includes support for professional learning communities, ongoing training, time for experimentation and realistic expectations during technological change (Thannimalai & Raman, 2020; Ming et al., 2023).

4.5 Data-Informed and Innovation-oriented Digital Leadership

This domain focuses on the principal's use of data, feedback and experimentation to guide school improvement, where data include information about student learning, school operations and stakeholder perceptions that support reflection and decision-making (Schildkamp et al., 2020; Van Wart et al., 2019). Innovation is framed not as constant disruption, but as gradual, context-sensitive improvement through small pilots, reflection and adaptation (Lloyd, 2021; Ming et al., 2023). This domain remains human-centred by

recognising that data-rich environments can create technostress, overload and punitive performance cultures if handled poorly (Ertiö et al., 2024; Salanova et al., 2013), so the framework encourages using data and innovation to support dialogue, learning and improvement rather than pressure or punishment (Pettersson, 2021; Wong et al., 2021). Table 2 summarises the four domains, their focus and illustrative human-centred practices.

Table 2: Human-Centred Domains of the Dynamic Digital Leadership Competency Framework

Domain	Focus	Illustrative human-centred practices
1. Self and Ethical Digital Leadership	Self-awareness, emotional regulation, ethics, responsible use of technology and data	Acknowledges digital stress openly, creates space for honest dialogue, and considers wellbeing, inclusion and privacy when making technology decisions
2. Visionary and Strategic Digital Leadership	Human-centred digital vision, alignment with policy and school needs, realistic priorities	Co-constructs a digital vision with staff, communicates change with empathy, and matches initiatives to school readiness and student needs
3. Instructional and Learning-Focused Digital Leadership	Pedagogically meaningful technology use, teacher development, supportive learning culture	Provides ongoing training, allows time for experimentation, supports PLCs, and avoids undue pressure for immediate results when new tools are introduced
4. Data-Informed and Innovation-Oriented Digital Leadership	Evidence-informed improvement, feedback use, gradual and context-sensitive innovation	Uses data for support rather than punishment, avoids overload, and pilot small innovations before scaling according to school capacity

5. Discussion

The proposed framework advances existing theory in three specific ways rather than simply restating the four domains described above. First, it extends digital leadership standards such as ISTE (2018) by repositioning emotional and ethical self-regulation from an implicit background quality into an explicit structural core governing how vision, instruction and innovation are enacted, addressing a gap the standards themselves do not resolve. Second, it extends instructional leadership theory (Leithwood et al., 2004) by proposing that instructional effectiveness during digital change is contingent on the leader's prior emotional regulation, a contingency relationship existing instructional leadership models do not specify. Third, by adapting the sensing-seizing-transforming logic of dynamic capabilities theory (Teece et al., 1997) to an individual leadership context, the framework offers competency modelling scholarship (Spencer & Spencer, 1993) a way of representing competencies as recursive and adaptive rather than as a fixed inventory of traits a theoretical move with relevance beyond school leadership. These three extensions, rather than the four-domain structure alone, constitute the paper's principal contribution to academic debate. They also carry implications for wellbeing: leaders demonstrating self-awareness, emotional regulation, resilience and ethical judgement are better equipped to handle uncertainty during digital transformation, reducing burnout and strengthening psychological safety. Evaluations of school leaders should therefore consider self-awareness and ethical judgement alongside ICT literacy, and professional development should integrate technical capability with empathy and reflective practice. Because this article is conceptual, the framework requires empirical testing; future studies could develop measures for each domain and examine relationships with teacher wellbeing and school climate.

6. Conclusion

Digital school leadership is often framed in terms of infrastructure, platforms and innovation, but its greatest challenges are human rather than technological. This article responds to that gap by proposing a human-centred and dynamic digital leadership competency framework that connects self and ethical leadership with vision, instruction and adaptive school improvement, offering a more balanced way of understanding how school leaders can guide digital transformation effectively and humanely.

Ethics Declaration: No new primary data were collected or analysed specifically for this conceptual paper. The article is based on conceptual synthesis and selective reference to insights from prior work; therefore, separate ethical clearance for this paper was not required.

AI Declaration: This paper makes use of AI tools, including Consensus for literature retrieval and Copilot for data cleaning, analysis and language refinement. All AI-assisted processes were conducted under human supervision to ensure accuracy and clarity.

References

Ahmad, F., Aziz, N., & Rahman, S. (2022). Tahap kepimpinan digital dalam kalangan pengetua dan guru besar di Malaysia. Jurnal Kepimpinan Pendidikan, 9(2), 45–62.

Aziz, N., & Yusof, A. (2022). Konstruk kepimpinan kendiri dalam konteks kepimpinan digital. Jurnal Kepimpinan Pendidikan, 9(3), 78–95.

Aziz, N., Yusof, A., & Rahman, S. (2022). Jurang digital antara sekolah bandar dan luar bandar di Malaysia: Cabaran dalam pelaksanaan kepimpinan digital. Jurnal Teknologi Pendidikan Malaysia, 12(1), 23–40.

Azman, N., Sirat, M., & Ahmad, A. R. (2022). Aplikasi kaedah Fuzzy Delphi dalam penyelidikan pendidikan: Satu tinjauan sistematik. Jurnal Penyelidikan Pendidikan Malaysia, 35(1), 1–18.

Batool, B. F. (2013). Emotional intelligence and effective leadership. Journal of Business Studies Quarterly, 4(3), 84–94.

Chen, Y., & Guo, W. (2018). The impact of principals' emotional intelligence and instructional leadership on teachers' instructional practices. International Journal of Educational Management, 32(2), 362–374.

Cherniss, C. (2000). Emotional intelligence: What it is and why it matters. Consortium for Research on Emotional Intelligence in Organizations.

Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approach (5th ed.). Sage.

Creswell, J. W., & Plano Clark, V. L. (2018). Designing and conducting mixed methods research (3rd ed.). Sage.

Dasruth, J., & Naicker, S. R. (2026). Conceptualising a school leaders' digital leadership framework to lead Education 4.0 in a South African school district. SAGE Open, 16(2), 1–22. https://doi.org/10.1177/21582440251415081

Economic Planning Unit. (2021). Malaysia Digital Economy Blueprint. Prime Minister's Department.

Ertiö, T., Eriksson, T., Rowan, W., & McCarthy, S. (2024). The role of digital leaders' emotional intelligence in mitigating employee technostress. Business Horizons, 67(3), 399–409. https://doi.org/10.1016/j.bushor.2024.01.003

Goleman, D., Boyatzis, R., & McKee, A. (2022). Primal leadership: Unleashing the power of emotional intelligence. Harvard Business Press.

Hamzah, N. H., Nasir, M. K. M., & Abdul Wahab, J. (2021). The effects of principals' digital leadership on teachers' digital teaching during the Covid-19 pandemic in Malaysia. Journal of Education and e-Learning Research, 8(2), 216–221. https://doi.org/10.20448/journal.509.2021.82.216.221

Harms, P. D., & Credé, M. (2010). Emotional intelligence and transformational and transactional leadership: A meta-analysis. Journal of Leadership & Organizational Studies, 17(1), 5–17. https://doi.org/10.1177/1548051809350894

Heifetz, R. A., Grashow, A., & Linsky, M. (2009). The practice of adaptive leadership: Tools and tactics for changing your organization and the world. Harvard Business Press.

Helfat, C. E., & Peteraf, M. A. (2015). Managerial cognitive capabilities and the microfoundations of dynamic capabilities. Strategic Management Journal, 36(6), 831–850. https://doi.org/10.1002/smj.2247

International Society for Technology in Education. (2009). ISTE standards for administrators. ISTE.

International Society for Technology in Education. (2018). ISTE standards for education leaders. ISTE.

Jafar, A., Dasuki, S. I., Mohamed, N., Ahmad, F., & Nordin, N. (2022). Virtual learning during COVID-19: Exploring challenges and identifying highly vulnerable groups based on location. International Journal of Environmental Research and Public Health, 19(17), 11108. https://doi.org/10.3390/ijerph191711108

Kafa, A., & Pashiardis, P. (2019). School leaders' competencies that make a difference in the era of Education 4.0: A conceptual framework. International Journal of Academic Research in Business and Social Sciences, 9(5), 95–111. https://doi.org/10.6007/IJARBSS/v9-i5/5885

Kementerian Pendidikan Malaysia. (2013). Malaysia Education Blueprint 2013–2025: Preschool to post-secondary education. Ministry of Education Malaysia.

Kementerian Pendidikan Malaysia. (2023). Dasar Pendidikan Digital. Bahagian Teknologi Pendidikan.

Leithwood, K., Day, C., Sammons, P., Harris, A., & Hopkins, D. (2004). Successful school leadership: What it is and how it influences pupil learning. DfES.

Li, W., Liu, K., Belitski, M., Ghobadian, A., & O'Regan, N. (2024). Digital leadership and employee well-being: The mediating role of organizational culture. Journal of Business Research, 158, Article 113549. https://doi.org/10.1016/j.jbusres.2023.113549

Lim, C. P., & Tan, S. C. (2023). Digital leadership in Singapore schools: A case study of successful practices. Asia Pacific Journal of Education, 43(2), 312–328. https://doi.org/10.1080/02188791.2021.1924639

Lloyd, M. (2021). Digital leadership in education: A systematic review. Educational Technology Research and Development, 69(5), 2537–2564. https://doi.org/10.1007/s11423-021-10024-3

Mohd Tahir, L., Hassan, R., Rosli, M. S., Abdul Aziz, N., & Abdullah, N. J. (2025). Development and validation of a digital leadership instrument for Malaysian primary school principals. Asian Journal of University Education, 21(3), 918–933. https://doi.org/10.24191/ajue.v21i3.61

Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. Sluyter (Eds.), Emotional development and emotional intelligence: Educational implications (pp. 3–31). Basic Books.

McLeod, S., & Richardson, J. W. (2011). The dearth of technology leadership in schools. Journal of School Leadership, 21(2), 216–240. https://doi.org/10.1177/105268461102100204

Ming, T. S., Hall, C., & Azman, H. (2023). Digital competencies of school leaders in Malaysia: A mixed-methods study. Educational Management Administration & Leadership, 51(3), 459–477. https://doi.org/10.1177/17411432211020171

Nubun, C. C., Hassan, Z., & Hamidi, H. (2024). Exploring digital leadership competencies among school administrators and digital maturity in Sarawak, Malaysia: From teachers' perspectives. Pakistan Journal of Life and Social Sciences, 22(2), 2994–3009.

Nubun, J., Ismail, A., & Zain, M. (2024). Kompetensi kepimpinan digital dalam kalangan pentadbir sekolah di Malaysia. Jurnal Pengurusan dan Kepimpinan Pendidikan, 37(1), 1–18.

Ojo, J. O., & Naicker, S. R. (2025). Principals' digital leadership competencies in the Fourth Industrial Revolution: Teaching and learning with ISTE-A standards. Education Sciences, 15(6), Article 656. https://doi.org/10.3390/educsci15060656

Okunlola, J. O., & Naicker, S. R. (2025). Principals' digital leadership competencies in the Fourth Industrial Revolution: Teachers' perspectives. Education Sciences, 15(4), Article 455. https://doi.org/10.3390/educsci15040455

Pettersson, F. (2021). Understanding digitalization and educational change in school by means of activity theory and the levels of learning concept. Education and Information Technologies, 26(1), 187–204. https://doi.org/10.1007/s10639-020-10239-8

Raman, A., Thannimalai, R., & Ismail, I. (2019). Principals' technology leadership and its effect on teachers' technology integration in 21st century classrooms. International Journal of Instruction, 12(4), 423–442. https://doi.org/10.29333/iji.2019.12428a

Richey, R. C., & Klein, J. D. (2007). Design and development research: Methods, strategies, and issues. Lawrence Erlbaum.

Rumeli, N. H. B., & Md Rami, A. (2023). Kepimpinan digital dalam pendidikan: Satu tinjauan sistematik. Malaysian Journal of Learning and Instruction, 20(1), 233–258.

Salanova, M., Llorens, S., & Cifre, E. (2013). The dark side of technologies: Technostress among users of information and communication technologies. International Journal of Human-Computer Interaction, 29(3), 153–163. https://doi.org/10.1080/10447318.2012.680460

Sasere, O. B., & Matashu, M. (2025). The direct and cascading impacts of school leaders' emotional intelligence on teachers and students: A systematic review. Education Sciences, 15(9), Article 1168. https://doi.org/10.3390/educsci15091168

Schildkamp, K., Poortman, C. L., Luyten, H., & Ebbeler, J. (2020). Factors promoting and hindering data-based decision making in schools. School Effectiveness and School Improvement, 31(3), 426–452. https://doi.org/10.1080/09243453.2019.1704601

Sheninger, E. (2019). Digital leadership: Changing paradigms for changing times (2nd ed.). Corwin Press.

Shin, W. S., Han, I., & Kim, I. (2023). Digital leadership for K-12 schools: A systematic review. Educational Technology Research and Development, 71(1), 193–224. https://doi.org/10.1007/s11423-022-10165-x

Spencer, L. M., & Spencer, S. M. (1993). Competence at work: Models for superior performance. John Wiley & Sons.

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. Strategic Management Journal, 28(13), 1319–1350. https://doi.org/10.1002/smj.640

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. Strategic Management Journal, 18(7), 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z

Thannimalai, R., & Raman, A. (2018). The influence of principals' technology leadership and professional development on teachers' technology integration. Malaysian Journal of Learning and Instruction, 15(1), 203–228.

Thannimalai, R., & Raman, A. (2020). Principals' technology leadership and its effect on teachers' technology integration. International Journal of Instruction, 13(3), 447–466. https://doi.org/10.29333/iji.2020.13331a

Torraco, R. J. (2016). Writing integrative literature reviews: Using the past and present to explore the future. Human Resource Development Review, 15(4), 404–428. https://doi.org/10.1177/1534484316671606

Van Wart, M., Roman, A., Wang, X., & Liu, C. (2019). Operationalizing the definition of e-leadership: Identifying the elements of e-leadership. International Review of Administrative Sciences, 85(1), 80–97. https://doi.org/10.1177/0020852316681446

Venter, J., Naicker, S. R., & Awodiji, O. A. (2024). Enhancing school principals' instructional leadership through emotional intelligence. International Journal of Educational Organization and Leadership, 31(2), 45–62. https://doi.org/10.18848/2329-1656/CGP/v31i02/45-62

Wong, K. T., Teo, T., & Russo, S. (2021). Influence of TPB and technology acceptance indicators on the intention to use ICT in a school environment. Journal of Educational Computing Research, 59(1), 243–265. https://doi.org/10.1177/0735633120952999

Zainal, A. Z., & Zainuddin, S. Z. (2020). Technology adoption in Malaysian schools: An analysis of national ICT in education policy initiatives. Digital Education Review, 37, 172–194. https://doi.org/10.1344/der.2020.37.172-194

Zhong, L. (2017). Indicators of digital leadership in the context of K-12 education. Journal of Educational Technology Development and Exchange, 10(1), 27–40. https://doi.org/10.18785/jetde.1001.03

Does Ethical CSR Buffer the Creativity Cost of Cyberbullying?

Aizza Anwar and Viktorija Skvarciany
Vilnius Gediminas Technical University, Lithuania

aizza.anwar@vilniustech.lt (Corresponding author)
viktorija.skvarciany@vilniustech.lt

Abstract: Cyberbullying in the workplace has emerged as a growing concern within higher education institutions (HEIs) across Europe. Drawing on COR theory and micro-level corporate social responsibility (CSR) literature, it develops a moderated mediation framework in which workplace cyberbullying undermines academic creative behaviour by depleting psychological well-being, and employee-oriented CSR attenuates both the direct and indirect effects of this process. COR theory explains why cyberbullying depletes the psychological resources creativity requires; CSR literature supplies the specific organisational resource, a "resource caravan," in Hobfoll's terms that COR theory predicts should buffer this depletion, a pairing not previously made in the cyberbullying-creativity literature. The framework extends resource-based creativity research to an occupational group not yet examined under this lens, and specifies a dual-level buffering mechanism not yet tested jointly elsewhere. We propose European HEIs as the empirical scope for future testing, given the increasing digitalisation of academic work across the continent. The framework carries practical implications for how HEIs design cyberbullying policy, monitor staff well-being, and embed employee-oriented CSR into institutional culture as a safeguard for sustained academic creativity.

Keywords: Workplace cyberbullying, Corporate social responsibility, Psychological well-being, Employee creativity

1. Introduction

Higher education institutions (HEIs) are increasingly confronted with the threat of workplace cyberbullying, a phenomenon characterised by repeated, intentional, and digitally mediated aggression that crosses temporal and spatial boundaries, leaving targets with limited opportunity to defend themselves (Cassidy et al. 2016; Salazar et al. 2024) and unlike traditional workplace bullying, cyberbullying infiltrates all dimensions of academic life, eroding the collegial trust and psychological safety upon which research, teaching, and scholarly community depend. As universities intensify their reliance on digital communication platforms for collaboration, peer review, and institutional governance, employees' exposure to hostile online conduct has grown correspondingly, yet institutional responses remain underdeveloped. This gap persists in more recent scholarship: institutional measures addressing academic staff targeted cyberbullying remain scarce (Bisaillon et al. 2023).

A particularly under-examined consequence of workplace cyberbullying in academic contexts is its impact on employee creativity, which underpins academic excellence, institutional competitiveness, and societal impact (Tootell et al. 2021). However, despite growing recognition that hostile work environments suppress creative performance (Shabbir and Islam 2024), the specific mechanisms through which workplace cyberbullying undermines creativity in HEI contexts remain insufficiently theorised and empirically underexplored. Conservation of Resources (COR) theory (Hobfoll 2011) provides the primary theoretical lens for this study. COR theory holds that individuals are fundamentally motivated to acquire, maintain, and protect valued resources, including emotional energy, social support, and psychological well-being and that psychological stress arises when these resources are threatened or lost. Workplace cyberbullying constitutes a potent stressor that initiates precisely such resource loss: employees subjected to digital hostility must expend considerable cognitive and emotional effort managing exclusion, disrespect, and interpersonal threat. This resource depletion reduces their psychological well-being and, by extension, their capacity for the sustained, exploratory cognitive engagement that creativity demands. Accordingly, psychological well-being is theorised here as the critical mediating mechanism through which workplace cyberbullying erodes academic creative behaviour.

The severity of these effects is not uniform: organisations vary in the extent to which they cultivate employee-protective environments such as employee-oriented corporate social responsibility (CSR), which may amplify or attenuate cyberbullying-induced resource loss. It is defined as organisational practices that prioritise employee welfare, dignity, fair treatment, and development (Lee et al. 2013), which represents a theoretically compelling boundary condition. From a COR perspective, employee-oriented CSR generates a reservoir of organisational resources that employees can draw on when confronting interpersonal adversity (hostile, demeaning, or exclusionary treatment from colleagues or supervisors, including workplace cyberbullying as a digitally mediated form). When staff perceive their institution as genuinely committed to their well-being through authentic, consistent, and employee-centred practices, the resource-depleting impact of cyberbullying may be substantially weakened (Kim and Lee 2022).

COR and CSR literatures are combined here deliberately, rather than as an additive pairing of convenient theories. COR theory specifies the mechanism by which cyberbullying depletes the psychological resources creativity depends on, but does not by itself identify which organisational-level resource should counteract that depletion. Employee-oriented CSR supplies that missing piece: as an institutionally controlled, employee-directed resource, it is precisely the kind of "resource caravan" (Hobfoll 2011) that COR theory predicts should attenuate stress-driven resource loss, yet this specific pairing has not been applied to the cyberbullying–creativity relationship. This gap is visible across European higher education more broadly: academic staff, as distinct from students, have received comparatively little attention regarding their online victimisation experiences (Bussu et al. 2025), and the mechanism proposed here — resource depletion undermining academic creativity, buffered by an internal organisational resource — is plausibly at work across European HEI contexts wherever academic staff face digital hostility. Section 7 identifies Lithuania and the broader Baltic region, where this gap is particularly pronounced within an otherwise active regional bullying literature, as a starting point for empirical validation.

Against this backdrop, the present study develops a moderated mediation framework that advances understanding of how workplace cyberbullying undermines academic creative behaviour in HEIs, and under what institutional conditions its effects can be buffered. Although Europe has produced a growing body of research on bullying and victimisation in educational institutions (Riso 2024), this evidence base has consistently bypassed HEI cyberbullying as a focal construct, concentrating instead on general bullying among higher education students (de Souza et al. 2022; Gordillo et al. 2024). Its objectives are threefold: to examine the cyberbullying-creativity relationship; to identify psychological well-being as the mediating mechanism; and to advance employee-oriented CSR as a moderator that interrupts this chain. Adopting a conceptual, theory-building approach, this paper synthesises the existing literature on workplace cyberbullying, psychological well-being, employee-oriented CSR, and creativity to advance a set of testable propositions and integrate them into a single moderated mediation framework intended to guide future empirical research in this setting.

2. Literature Review

2.1 Workplace Cyberbullying and Academic Creative Behaviour

Academic creative behaviour is conceptually distinct from organisational creativity, which focuses on the production of novel and useful ideas, solutions, and approaches that advance organisational effectiveness in typical organisational roles. It is largely self-directed rather than task-assigned, evaluated through external peer review rather than internal managerial appraisal, and oriented toward long-horizon scholarly and pedagogical outputs, such as original research and curriculum innovation, rather than short-cycle operational problem-solving (George and Zhou 2001; Amabile et al. 1996). Empirical evidence supports this: among Zimbabwean university staff, collegial and developmental cultures predicted creativity, while hierarchical, control-oriented culture undermined it (Makumbe 2021). These features leave academic staff simultaneously more autonomous in generating creative work and more exposed, reputationally and psychologically, when digital hostility disrupts it.

Cyberbullying, as a persistent digital stressor, constitutes a direct threat to key psychological resources and activities such as creativity (Kalyar et al. 2021; Mushtaq et al. 2022). Unlike general bullying or burnout, cyberbullying's digital, boundary-crossing nature denies targets typical recovery time, intensifying rather than merely adding to creativity-suppressing stress. In academic settings, UK-based scholarship has emphasised that academic staff, as distinct from students, have received insufficient attention regarding their online victimisation experiences (Bussu et al. 2025). However, limited studies have investigated workplace cyberbullying within higher education institutions; Table 1 summarises Web of Science- and Scopus-indexed studies on the digital workplace mistreatment topic in European higher education from 2017 to 2025.

Table 1: Digital Workplace Mistreatment in European Higher Education Institutes

Study	Country / Region	Sample Details
Pitsia et al., 2025	Ireland	N=3,032 employees across 20 Higher Education Institutions in Ireland

Study	Country / Region	Sample Details
Bussu et al., 2025	United Kingdom	N=34 student and university staff victims
Celuch et al., 2024	Finland	N=2,492 university academics (alongside samples of politicians and media professionals)
Bussu et al., 2023a	England (UK)	university staff and students at an English university
Bussu et al., 2023b	England (UK)	student and staff victims; online semi-structured questionnaire
Celuch et al., 2022	Finland	N=2,492 university employees + N=510 local politicians
Oksanen et al., 2022	Finland	N=2,492 university research and teaching staff members across 5 major Finnish universities
Meriläinen and Kõiv, 2019	Estonia	N=864 university faculty members
Coyne et al., 2017	United Kingdom	N=331 UK university employees

Source: Author's own creation

Emerging evidence suggests that hostile digital work environments, particularly those characterised by workplace cyberbullying, pose a significant threat to academic staff's creative capacities. Mushtaq et al. (2022) confirmed that cyberbullying is negatively associated with employee creativity, arguing that exposure to digital hostility eliminates employees' motivation for original thinking. Similarly, Anasori et al. (2023) found that workplace bullying adversely affects employee creativity, with psychologically distressed employees exhibiting significantly reduced creative performance. Jiang et al. (2019) argued that bullying and hostile communication cause employees to mentally detach from their work, diminishing their motivation and impairing their ability to think creatively. Furthermore, Shabbir and Islam (2024) demonstrated through multilevel analysis that both co-worker bullying and abusive supervision significantly reduce employee creative behaviour, consistent with COR theory's prediction that resource loss begets further loss (Hobfoll 2001; Holmgreen et al. 2017). Moreover, while this negative relationship is established among general employees, it cannot be assumed to transfer unchanged to academic staff, whose creative work is self-directed and peer-evaluated rather than managerially supervised; Proposition 1 therefore extends, rather than restates, the general-employee finding for this specific occupational group. Thus, the following proposition is advanced:

Proposition 1: Workplace cyberbullying is negatively related to academic creative behaviour.

2.2 Mediating Role of Psychological Well-being

An increasing body of research on workplace cyberbullying identifies psychological well-being as a fundamental psychological cost through which employees perceive and interpret negative interpersonal interactions (Anwar et al. 2020). Using large-scale Swedish HEI survey data (N=14,047), Mensah et al. (2026) demonstrate that workplace mistreatment significantly exacerbates employees' mental health burden. Drawing on COR theory, cyberbullying operates as a severe hindrance stressor that rapidly depletes an individual's valued psychological and emotional resources, resulting in sustained decline in overall well-being (Holmgreen et al. 2017; Mushtaq et al. 2022; Kalyar et al. 2021). Workplace bullying and psychological well-being are intricately related, as bullying

negatively affects workers' psychological well-being (Gupta and Bakhshi 2018; Bernstein and Trimm 2016). When individuals maintain high levels of psychological well-being, they exhibit greater cognitive flexibility, broader associative thinking, and stronger intrinsic motivation, each essential to generating novel and useful ideas in academic contexts (Zhang 2024; Wang et al. 2022). A meta-analytic review by Acar et al. (2020) confirmed a significant positive relationship between well-being and creativity, establishing that positive affect and psychological flourishing are core antecedents of creative output. Using COR theory, it can therefore be proposed:

> *Proposition 2: Psychological well-being mediates the negative relationship between workplace cyberbullying and academic creative behaviour, such that cyberbullying reduces psychological well-being, which in turn reduces academic creative behaviour.*

2.3 Moderating Role of Employee-oriented Corporate Social Responsibility

CSR represents a critical contextual resource that can attenuate the psychological harm inflicted by cyberbullying. COR theory provides the explanatory logic: cyberbullying depletes valued personal and psychological resources, producing declines in well-being (Hobfoll 2011; Holmgreen et al. 2017), while employee-oriented CSR counteracts this depletion by creating a resource caravan of relational, tangible, and symbolic support (Hobfoll 2011). When employees perceive their organisation as genuinely caring for their welfare, adverse experiences such as cyberbullying are interpreted within a broader framework of organisational support, moderating the psychological damage that would otherwise result. Kim and Lee (2022) extended this reasoning, showing that CSR authenticity — employees' conviction that CSR efforts are sincere rather than symbolic — shapes how organisational support is experienced.

> *Proposition 3: Employee-oriented CSR moderates the negative relationship between workplace cyberbullying and psychological well-being, such that the relationship is weaker when employee-oriented CSR is higher.*

Beyond its effect on psychological well-being, workplace cyberbullying directly suppresses creative behaviour by exhausting the cognitive and motivational resources creativity requires, and by inducing fear and anxiety that undermine academic creative engagement (Kalyar et al. 2021; Mushtaq et al. 2022). Employee-oriented CSR may moderate this direct relationship by sustaining the psychological safety needed for creative engagement (Kim and Lee 2022; Lee et al. 2013), while also limiting the degree to which cyberbullying depletes the psychological resources of cognitive flexibility, attentional scope, and intrinsic motivation — that sustain the indirect pathway from well-being to creativity (Hobfoll 2011; Acar et al. 2020; Zhang 2024). Thus:

> *Proposition 4: The indirect effect of workplace cyberbullying on academic creative behaviour through psychological well-being is moderated by employee-oriented CSR, such that the mediated relationship is weaker when employee-oriented CSR is higher.*

3. Research Framework

Figure 1 integrates the four propositions advanced above into a single moderated mediation framework. Workplace cyberbullying is proposed to reduce academic creative behaviour both directly (P1) and indirectly through diminished psychological well-being (P2), while employee-oriented CSR moderates the strength of this cascade at both the direct cyberbullying-well-being link (P3) and the mediated pathway to creative behaviour (P4).

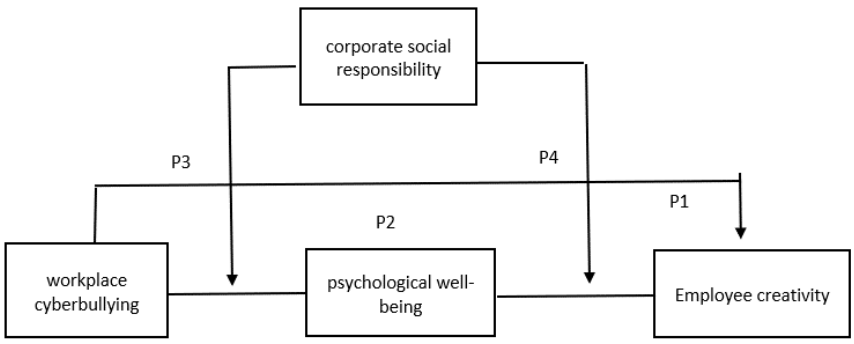


Figure 1: Research Framework

4. Methodology (Conceptual Framework)

This paper follows a conceptual theory-building approach based on a structured review and synthesis of existing literature on workplace cyberbullying, psychological well-being, employee-oriented CSR, and creativity. Rather than testing the proposed relationships against primary data, the study integrates the explanatory mechanisms of Conservation of Resources (COR) theory (Hobfoll 2011) with empirical findings drawn from adjacent workplace cyberbullying, well-being, and creativity literatures to construct a coherent moderated mediation framework applicable to the higher education context.

The framework's constructs are anchored to established measurement traditions from the literature, even though this conceptual paper does not itself collect or analyse primary data. Workplace cyberbullying corresponds to the domain captured by the Inventory of Cyberbullying Acts at Work (ICA-W) developed by Vranjes et al. (2018); psychological well-being corresponds to the Satisfaction With Life Scale (SWLS) developed by Diener et al. (1985); employee-oriented CSR corresponds to the employee-perception CSR scale of Lee et al. (2013); and academic creative behaviour corresponds to the creativity scale of George and Zhou (2001). This anchoring supports the propositions' future empirical operationalisation.

Two theoretical mechanisms structure the framework: workplace cyberbullying operates as a resource-depleting stressor that erodes psychological well-being and the creative capacity it sustains (Propositions 1-2), while employee-oriented CSR acts as a contextual resource caravan that buffers this depletion at both the direct and indirect levels (Propositions 3-4). Together, these propositions offer a coherent theoretical structure to guide future empirical testing across European higher education institutions.

5. Discussion

This conceptual paper advances a moderated mediation framework explaining why workplace cyberbullying undermines academic creative behaviour through diminished psychological well-being, and why employee-oriented CSR can attenuate these harmful effects. Sector-specific evidence indicates that cyberbullying in higher education is not a marginal interpersonal issue but a workforce sustainability concern with measurable mental-health consequences: in a large Swedish HEI dataset, workplace cyberbullying significantly exacerbated employees' mental health burden (Mensah et al. 2026). Institutional responses, however, remain underdeveloped; most HEIs still lack dedicated cyberbullying management policies, leaving academic staff without formal recourse (Bisaillon et al. 2023; Ifon 2023; Salazar et al. 2024). Building on this evidence, the present framework positions cyberbullying as a resource-draining exposure that erodes the psychological capacity required for sustained scholarly and pedagogical creativity.

The proposed model also responds to a persistent gap in the European literature specifically. Academic staff, as distinct from students, have received comparatively little attention regarding their online victimisation experiences in UK-based scholarship (Bussu et al. 2025), and similar attentional gaps are evident in European studies (Celuch et al. 2024; Bussu et al. 2023a, 2023b; Pitsia et al. 2025). This pattern also holds within individual European national literatures. Consistent with COR theory's resource-based logic, the mediating role of psychological well-being is central to this conceptualisation. Workplace bullying and cyberbullying have been shown to erode workers' psychological well-being (Gupta and Bakhshi 2018; Bernstein and Trimm 2016), and this depletion carries downstream consequences for creativity: a meta-analytic review confirms that well-being and creativity are positively related, with positive affect and psychological flourishing acting as core antecedents of creative output (Acar et al. 2020), while other work links leadership-driven well-being to organisational creativity and innovation (Zhang 2024; Wang et al. 2022). This mirrors direct evidence that cyberbullying and workplace bullying suppress creative behaviour by depleting motivation and inducing psychological withdrawal (Mushtaq et al. 2022; Anasori et al. 2023; Jiang et al. 2019; Shabbir and Islam 2024). Positioning psychological well-being as the proximal cost through which cyberbullying translates into diminished creative behaviour is therefore consistent with both the direct and indirect evidence reviewed above.

Finally, the framework foregrounds employee-oriented CSR as a protective, internal institutional mechanism. CSR authenticity, employees' conviction that CSR efforts are value-driven and sincere rather than merely symbolic, has been shown to shape how organisational support is experienced (Kim and Lee 2022), and employee perceptions of CSR activities are known to carry meaningful internal consequences (Lee et al. 2013). Building on this reasoning, employee-oriented CSR is theorised here as a resource caravan, in Hobfoll's (2011; Holmgreen et al. 2017) terms, that weakens both the direct performance-relevant impairment and the indirect pathway through psychological well-being. In short, CSR is positioned not merely as an external reputational

instrument but as an internal ethical and relational mechanism that can reduce the likelihood that cyberbullying becomes normalised and buffer academic staff against resource loss when hostile interactions occur.

6. Managerial and Practical Implications

This framework carries significant implications for how HEIs understand, respond to, and prevent workplace cyberbullying, revealing it as a systemic threat to institutional creativity rather than merely a disciplinary matter. The four propositions suggest several interconnected directions for managerial and policy action. Most HEIs lack clear, dedicated cyberbullying management policies; where institutional responses do exist today, they tend to be reactive and IT-centred, such as account-level monitoring or post-incident content takedown, rather than proactive measures aimed at protecting staff well-being and creative capacity (Ifon 2023; Salazar et al. 2024), leaving academic staff without formal institutional recourse. First, institutional leaders should recognise that workplace cyberbullying in academic settings is not merely an interpersonal conflict but a creativity-suppressing stressor with institution-wide consequences, and should adopt a proactive stance toward digital workplace culture by establishing clear, behaviourally specific policies that define unacceptable conduct across digital channels.

Second, early-career academics and those in precarious employment warrant particular attention, given their elevated vulnerability; monitoring well-being through anonymous climate surveys helps identify emerging hotspots before cumulative damage to creative capacity sets in. Third, academic managers and heads of department should receive targeted training in recognising and interrupting early signs of cyberbullying and in cultivating the psychologically safe environments that creativity requires. Together, these measures call for HEIs to treat academic creativity as an organisational resource requiring active protection: incorporating well-being, perceived CSR, and digital climate into routine monitoring allows targeted, rather than generic, intervention.

7. Future Research Directions

Future research is required to empirically test the proposed moderated mediation model across European higher education institutions. Lithuania and the broader Baltic region are a natural starting point: existing research on digital workplace mistreatment in European HEIs has concentrated mostly in the UK (Bussu et al. 2025), leaving academic-staff cyberbullying in the Baltic region comparatively unexamined. Initial testing there could subsequently be extended to other European HEI systems to establish the framework's generalisability across differing institutional and regulatory contexts. Such testing would ideally use a two-wave time-lagged design to separate predictor and outcome measurement and reduce common method bias. Researchers should also examine whether relationship strength varies across academic career stages and employment security levels, given differential exposure and vulnerability. While this framework foregrounds psychological well-being as the central mediating mechanism, future studies could examine complementary mediators such as psychological safety, professional identity threat, or emotional exhaustion to clarify which mechanisms are most consequential for creative behaviour in academic settings. The growing integration of artificial intelligence into academic and administrative work also raises new questions for this agenda: AI-mediated communication tools may introduce novel vectors through which cyberbullying is enacted or concealed, while institutional AI-based monitoring systems may offer new, though ethically complex, means of detecting and mitigating hostile digital conduct; both merit future investigation. Finally, extending the model beyond employee-oriented CSR to other institutional resources, such as perceived organisational support or digital workplace climate, may further refine understanding of the conditions under which cyberbullying's creativity costs can be contained.

8. Conclusion

This conceptual paper advances a moderated mediation framework explaining how workplace cyberbullying erodes academic creative behaviour in HEIs, and identifies the institutional conditions that can contain this damage. Grounded in COR theory, it positions psychological well-being as the mechanism through which cyberbullying-induced resource loss suppresses creativity, and employee-oriented CSR as the boundary condition that weakens both the direct and mediated pathways to diminished creative output. The paper’s added knowledge is thus threefold: it extends COR-based cyberbullying–creativity research to academic staff as a distinct occupational group; it is the first framework to model employee-oriented CSR as a buffer operating at both the direct and mediated levels within a single model; and it pairs COR theory’s account of resource loss with the CSR literature’s account of the specific organisational resource that offsets it.

Ethics Declaration: This is a conceptual paper that synthesises existing published literature to develop a theoretical framework and does not involve the collection of primary data from human participants. Accordingly, no ethical clearance was required for the research reported in this paper.

AI Declaration: n AI tool (Claude, Anthropic) was used to support the preparation of this manuscript. It was used to check and correct grammar, to format the paper in line with the conference style requirements, and to check and format the reference list according to the Harvard referencing style. All substantive content, analysis and interpretation remain the authors' own.

Funding: This study is funded by the Research Council of Lithuania under the postdoctoral fellowship project P-PD-25-141.

References

Acar, S., Tadik, H., Myers, D., van der Sman, C. and Uysal, R. (2020) "Creativity and well-being: A meta-analysis", Journal of Creative Behaviour, Vol 55, No. 3, pp. 738-751. doi:10.1002/jocb.485.

Amabile, T.M., Conti, R., Coon, H., Lazenby, J. and Herron, M. (1996) "Assessing the work environment for creativity", Academy of Management Journal, Vol 39, No. 5, pp. 1154-1184. doi:10.5465/256995.

Anasori, E., De Vita, G. and Gürkan Küçükergin, K. (2023) "Workplace bullying, psychological distress, job performance and employee creativity: The moderating effect of psychological resilience", The Service Industries Journal, Vol 43, No. 5-6, pp. 336-357. doi:10.1080/02642069.2022.2147514.

Anwar, A., Kee, D.M.H. and Ahmed, A. (2020) "Workplace cyberbullying and interpersonal deviance: Understanding the mediating effect of silence and emotional exhaustion", Cyberpsychology, Behavior, and Social Networking, Vol 23, No. 5, pp. 290-296. doi:10.1089/cyber.2019.0407.

Bernstein, C. and Trimm, L. (2016) "The impact of workplace bullying on individual wellbeing: The moderating role of coping", SA Journal of Human Resource Management, Vol 15, pp. 1-12. doi:10.4102/sajhrm.v14i1.792.

Bisaillon, J., Mercure, C., Villeneuve, S. and Plante, I. (2023) "Cyberbullying of professors: What measures are in place in universities and what solutions are proposed by victims?", Studies in Higher Education, Vol 48, No. 11, pp. 1639-1650. doi:10.1080/03075079.2023.2206431.

Bussu, A., Pulina, M., Ashton, S.A. and Mangiarulo, M. (2023a) "Exploring the impact of cyberbullying and cyberstalking on victims' behavioural changes in higher education during COVID-19: A case study", International Journal of Law, Crime and Justice, Vol 75, Article 100628. doi:10.1016/j.ijlcj.2023.100628.

Bussu, A., Ashton, S.A., Pulina, M. and Mangiarulo, M. (2023b) "An explorative qualitative study of cyberbullying and cyberstalking in a higher education community", Crime Prevention and Community Safety, Vol 25, No. 4, pp. 359-385. doi:10.1057/s41300-023-00186-0.

Bussu, A., Pulina, M., Ashton, S.A. and Mangiarulo, M. (2025) "Cyberbullying and cyberstalking in higher education: Policies and practices for supporting students and university staff", Social Psychology of Education, Vol 28, Article 34. doi:10.1007/s11218-024-09989-x.

Cassidy, W., Jackson, M. and Faucher, C. (2016) "Gender differences and cyberbullying towards faculty members in higher education", in Navarro, R., Yubero, S. and Larrañaga, E. (eds.) Cyberbullying across the globe, Springer, pp. 79-98. doi:10.1007/978-3-319-25552-1_4.

Celuch, M., Savela, N., Oksa, R., Latikka, R. and Oksanen, A. (2022) "Individual factors predicting reactions to online harassment among Finnish professionals", Computers in Human Behavior, Vol 127, Article 107022. doi:10.1016/j.chb.2021.107022.

Celuch, M., Oksa, R., Ellonen, N. and Oksanen, A. (2024) "Self-censorship among online harassment targets: The role of support at work, harassment characteristics, and the target's public visibility", Information, Communication and Society, Vol 27, No. 11, pp. 2171-2190. doi:10.1080/1369118X.2023.2289978.

Coyne, I., Farley, S., Axtell, C., Sprigg, C., Best, L. and Kwok, O. (2017) "Understanding the relationship between experiencing workplace cyberbullying, employee mental strain and job satisfaction: A dysempowerment approach", The International Journal of Human Resource Management, Vol 28, No. 7, pp. 945-972. doi:10.1080/09585192.2015.1116454.

De Souza, S.B., Ferreira, P.C., Simão, A.M.V. and Fernández, D.F. (2022) "The dynamic of cyberbullying in university students: Moderating effects of gender and culture", REMIE: Multidisciplinary Journal of Educational Research, Vol 12, No. 3, pp. 322-348. doi:10.17583/remie.8999.

Diener, E., Emmons, R.A., Larsen, R.J. and Griffin, S. (1985) "The Satisfaction with Life Scale", Journal of Personality Assessment, Vol 49, No. 1, pp. 71-75. doi:10.1207/s15327752jpa4901_13.

George, J.M. and Zhou, J. (2001) "When openness to experience and conscientiousness are related to creative behavior: An interactional approach", Journal of Applied Psychology, Vol 86, No. 3, pp. 513-524. doi:10.1037/0021-9010.86.3.513.

Gordillo, M.D.R.Z., Bullón, F.F., Anunciação, L., Barrozo, L., Fernández, J.L. and Ferreira, J.A. (2024) "Problematic internet use, cyberbullying and mental health in Brazilian, Spanish, and Portuguese university students", Publicaciones: Facultad de Educación y Humanidades del Campus de Melilla, Vol 54, No. 2, pp. 75-93. doi:10.30827/publicaciones.v54i2.30106.

Gupta, R. and Bakhshi, A. (2018) "Workplace bullying and employee well-being: A moderated mediation model of resilience and perceived victimization", Journal of Workplace Behavioral Health, Vol 33, No. 2, pp. 96-115. doi:10.1080/15555240.2018.1464929.

Hobfoll, S.E. (2001) "The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory", Applied Psychology, Vol 50, No. 3, pp. 337-421. doi:10.1111/1464-0597.00062.

Hobfoll, S.E. (2011) "Conservation of resources theory: Its implication for stress, health, and resilience", in Folkman, S. (ed.) The Oxford Handbook of Stress, Health, and Coping, Oxford University Press, pp. 127-147. doi:10.1093/oxfordhb/9780195375343.013.0007.

Holmgreen, L., Tirone, V., Gerhart, J. and Hobfoll, S.E. (2017) "Conservation of resources theory: Resource caravans and passageways in health contexts", in Cooper, C.L. and Quick, J.C. (eds.) The Handbook of Stress and Health: A Guide to Research and Practice, John Wiley and Sons, pp. 443-457. doi:10.1002/9781118993811.ch27.

Ifon, J.C. (2023) "Management of cyberbullying: A qualitative exploratory case study of a Nigerian university", International Journal of Bullying Prevention, Vol 5, pp. 161-177. doi:10.1007/s42380-022-00124-y.

Jiang, W., Gu, Q. and Tang, T.L.-P. (2019) "Do victims of supervisor bullying suffer from poor creativity? Social cognitive and social comparison perspectives", Journal of Business Ethics, Vol 157, No. 3, pp. 865-884. doi:10.1007/s10551-017-3660-x.

Kalyar, M.N., Saeed, M., Usta, A. and Shafique, I. (2021) "Workplace cyberbullying and creativity: Examining the roles of psychological distress and psychological capital", Management Research Review, Vol 44, No. 4, pp. 607-624. doi:10.1108/MRR-03-2020-0130.

Kim, H. and Lee, M. (2022) "Employee perception of corporate social responsibility authenticity: A multilevel approach", Frontiers in Psychology, Vol 13, Article 948363. doi:10.3389/fpsyg.2022.948363.

Lee, E.M., Park, S.-Y. and Lee, H.J. (2013) "Employee perception of CSR activities: Its antecedents and consequences", Journal of Business Research, Vol 66, pp. 1716-1724. doi:10.1016/j.jbusres.2012.11.008.

Makumbe, W. (2021) "The impact of organizational culture on employee creativity amongst Zimbabwean academics", African Journal of Science, Technology, Innovation and Development, advance online publication. doi:10.1080/20421338.2020.1864882.

Mensah, A., Toivanen, S., Jensen, I. and Björklund, C. (2026) "Population attributable fractions of workplace cyberbullying for mental health problems among employees: Evidence from Swedish higher education institutions", Studies in Higher Education, advance online publication. doi:10.1080/03075079.2026.2628871.

Meriläinen, M. and Kõiv, K. (2019) "Theoretical dimensions of bullying and inappropriate behaviour among faculty members", Scandinavian Journal of Educational Research, Vol 63, No. 3, pp. 378-392. doi:10.1080/00313831.2017.1376349.

Mushtaq, W., Qammar, A., Shafique, I. and Anjum, Z.U.Z. (2022) "Effect of cyberbullying on employee creativity: Examining the roles of family social support and job burnout", Foresight, Vol 24, No. 5, pp. 596-609. doi:10.1108/FS-01-2021-0018.

Oksanen, A., Celuch, M., Latikka, R., Oksa, R. and Savela, N. (2022) "Hate and harassment in academia: The rising concern of the online environment", Higher Education, Vol 84, No. 3, pp. 541-567. doi:10.1007/s10734-021-00787-4.

Pitsia, V., O'Higgins Norman, J. and Mazzone, A. (2025) "Bullying in higher education institutions: Are LGBQ+ employees bearing the burden?", Higher Education Quarterly, Vol 79, No. 4. doi:10.1111/hequ.70049.

Riso, S. (2024) "Workplace bullying, harassment and cyberbullying: Are regulations and policies fit for purpose?", Eurofound, Publications Office of the European Union, Luxembourg. doi:10.2806/8853437.

Salazar, L.R., Weiss, A., Yarbrough, J.W. and Sell, K.M. (2024) "Cyberbullying of university faculty: An examination of prevalence, coping, gender, and personality factors", Computers in Human Behavior, Vol 155, Article 108186. doi:10.1016/j.chb.2024.108186.

Shabbir, M.Q. and Islam, S.U. (2024) "A multilevel investigation of workplace bullying and employee creative behavior: Uncovering the crucial role of psychological capital", International Journal of Workplace Health Management, Vol 17, No. 5-6, pp. 536-553. doi:10.1108/IJWHM-12-2023-0186.

Tootell, A., Kyriazis, E., Billsberry, J., Ambrosini, V., Garrett-Jones, S. and Wallace, G. (2021) "Knowledge creation in complex inter-organizational arrangements: Understanding the barriers and enablers of university-industry knowledge creation in science-based cooperation", Journal of Knowledge Management, Vol 25, No. 4, pp. 743-769. doi:10.1108/JKM-06-2020-0461.

Vranjes, I., Baillien, E., Vandebosch, H., Erreygers, S. and De Witte, H. (2018) "When workplace bullying goes online: Construction and validation of the Inventory of Cyberbullying Acts at Work (ICA-W)", European Journal of Work and Organizational Psychology, Vol 27, No. 1, pp. 28-39. doi:10.1080/1359432X.2017.1363185.

Wang, W., Kang, S.-W. and Choi, S.B. (2022) "Servant leadership and creativity: A study of the sequential mediating roles of psychological safety and employee well-being", Frontiers in Psychology, Vol 12, Article 807070. doi:10.3389/fpsyg.2021.807070.

Zhang, Y. (2024) "Cultivating a culture of innovation: The impact of leadership style on employee well-being and organizational creativity", International Journal of Global Economics and Management, Vol 2, No. 1, pp. 203-210. doi:10.62051/ijgem.v2n1.26.

Beyond Digitalisation: Evaluating Citizen Experience in Romanian e-Government Services

Mihaela Apostol, Alexandra-Mirela Kiș and Teodor-Iulian Gheorghe
National University of Political Studies and Public Administration (NUPSPA), Bucharest, Romania

mihaelaapostol@hotmail.com
kismirela1808@gmail.com
gh_teodor@yahoo.com

Abstract: The digital transformation of public administration has been widely assessed in terms of technological development and service availability. However, less attention has been paid to the quality of citizen–administration interactions and the extent to which digital public services effectively respond to users' needs and expectations. This paper addresses this gap by focusing on the evaluation of citizen experience as a central dimension of smart public administration. It argues that the effectiveness of e-government cannot be adequately measured solely through indicators related to digital infrastructure or service uptake, but must also consider how citizens perceive and engage with public services. Building on contemporary approaches to digital governance and citizen-centric public services, the study proposes an analytical framework for evaluating citizen experience in Romanian e-government. The research conceptualises citizen experience as a multidimensional construct, encompassing accessibility, usability, responsiveness, and perceived trust in digital public services. Methodologically, the paper adopts a mixed-methods approach, combining document analysis, exploratory qualitative evidence, and qualitative insights from institutional actors. The findings are expected to highlight structural and processual limitations in the current implementation of digital public services, particularly in relation to interoperability, feedback mechanisms, and user-oriented service design. The contribution of the paper lies in repositioning citizen experience from a secondary evaluative tool to a central component of digital governance, offering both theoretical and practical implications for public sector reform in Romania and beyond.

Keywords: Citizen experience index (CEI), e-Government, Digital governance, Citizen-centric public services, Public service evaluation, Smart public administration, Romania

1. Introduction

The digital transformation of public administration has fundamentally changed the way governments interact with citizens and deliver public services. Across Europe, governments have invested heavily in digital infrastructures, interoperable platforms and online services, expecting digital technologies to increase efficiency, transparency and accessibility. Experience over the last decade, however, tells a more sobering story: in many cases, digital technologies have simply reproduced existing administrative procedures in electronic form, leaving citizens' interactions with public institutions largely unchanged (Haug, Dan and Mergel, 2024).

This distinction highlights a central challenge for contemporary public administration. Digitalisation refers primarily to the technological conversion of existing administrative procedures into electronic form, whereas digital transformation requires deeper institutional change involving organisational learning, process redesign and continuous adaptation to citizens' evolving needs (Mergel, Edelmann and Haug, 2019). The success of digital transformation is increasingly seen to depend less on technological sophistication than on the capacity of public institutions to generate public value through citizen-centred governance (United Nations, 2024).

Research has reflected this evolution: early studies concentrated on e-government implementation, while more recent contributions have shifted towards digital government, public value, citizen-centred services, adaptive governance and, most recently, the implications of artificial intelligence (AI) for public service delivery and evaluation (Madan and Ashok, 2023). Nevertheless, existing evaluation frameworks continue to privilege technological indicators – digital maturity, service availability, user adoption – while paying limited attention to whether digital transformation genuinely improves citizens' experiences and enables institutions to learn from them.

We argue that citizen experience should be understood not as a by-product of digital government but as a strategic governance resource in its own right. A public administration becomes genuinely intelligent not when it deploys advanced technologies, but when it learns – continuously and systematically – from its interactions with citizens.

Romania offers a particularly relevant empirical context for exploring these issues. Similar to many countries undergoing accelerated digital transformation, Romanian public administration has made significant investments in digital infrastructure and online public services while continuing to face challenges related to

citizen adoption, institutional trust and administrative process redesign (OECD, 2023b; Lobonț et al., 2025). These characteristics make Romania an appropriate case for examining how citizen experience may serve as a meaningful indicator of digital transformation beyond technological implementation alone.

Against this background, this paper makes three interrelated contributions. First, it conceptually distinguishes digitalisation from digital transformation by emphasising organisational learning and public value as defining characteristics of intelligent public administration. Second, it proposes the Citizen Experience Index (CEI) as an analytical framework for evaluating citizen-centred digital public services across six dimensions: accessibility, usability, responsiveness, transparency, institutional trust, and feedback and adaptation. Third, it demonstrates how citizen experience can support adaptive governance by providing evidence that informs continuous administrative learning and service redesign. Although grounded in the Romanian context, the framework contributes more broadly to current debates on evaluating citizen-centred digital government.

2. Theoretical Foundations and Conceptual Framework

This study builds upon three complementary theoretical developments: the evolution from e-government towards digital transformation and smart public administration; the growing importance of citizen experience as a governance concept linked to public value; and the operationalisation of citizen experience through a multidimensional analytical framework supporting institutional learning and adaptive governance.

2.1 From e-Government to Digital Transformation

Research on digital public administration has evolved considerably over the past two decades. Early e-government initiatives focused primarily on the digitisation of administrative procedures, the provision of electronic public services and the improvement of administrative efficiency (Dunleavy et al., 2006). Evaluation during this stage concentrated largely on technological indicators such as infrastructure availability, online service provision and user adoption.

As digital technologies became embedded within public administration, the focus shifted towards digital government, recognising that technology alone cannot transform governance: organisational redesign, interoperability, integrated service delivery and citizen engagement became central elements of digital government strategies (Mergel, Edelmann and Haug, 2019; OECD, 2020). This evolution is summarised in Figure 1. More recently, the concept of digital transformation has expanded this perspective further. Rather than viewing transformation as the digital replication of existing administrative procedures, contemporary research emphasises organisational adaptation, continuous learning and public value creation; a recent systematic review confirms that much of what is labelled digital transformation in public administration still amounts to digitisation or digitalisation rather than genuinely transformational change (Haug, Dan and Mergel, 2024).

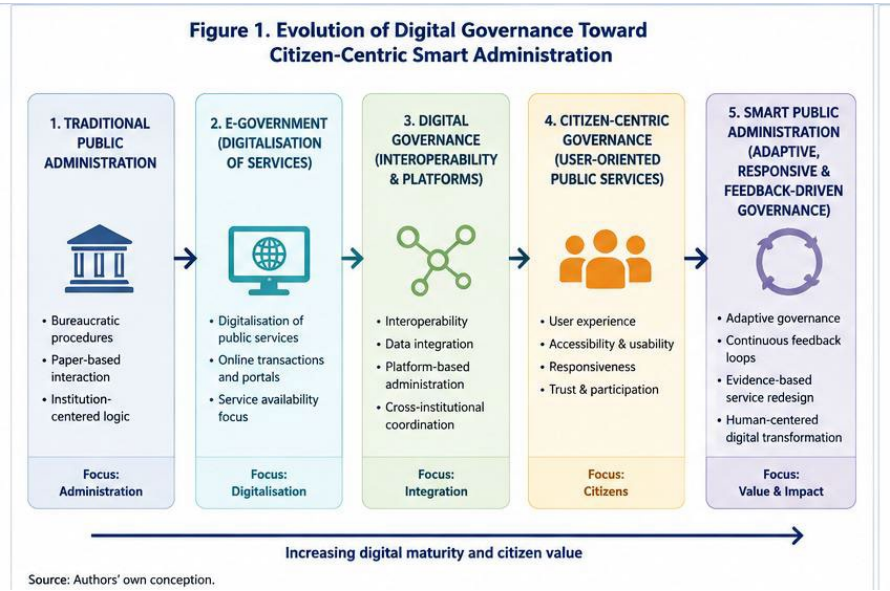


Figure 1: Evolution from traditional public administration to citizen-centred smart public administration

The end point of this evolution is smart public administration – a concept that should not be reduced to the deployment of advanced digital technologies. Instead, it represents an institutional capability through which

digital infrastructures, organisational processes and citizen interactions become mutually reinforcing components of adaptive governance. Within such systems, citizens are no longer passive users of digital services but active contributors whose experiences generate evidence for institutional improvement and governance innovation (Scholta and Lindgren, 2023).

2.2 Citizen Experience, Public Value and Institutional Learning

Citizen experience has moved to the centre of debates on digital transformation. Traditional frameworks measure service availability, technological maturity or administrative efficiency; although essential, these indicators reveal little about how citizens actually experience digital public services.

This perspective is closely aligned with public value theory (Moore, 1995), which argues that public organisations should be evaluated according to their capacity to create value for citizens and society. Public value extends beyond efficiency to include trust, legitimacy, accessibility, transparency, responsiveness and meaningful participation. Recent syntheses confirm that public value has become a central lens for evaluating digital public services, connecting information quality, system quality and trust with citizen satisfaction and broader societal outcomes (Setyawan, Sulistyo and Hartanto, 2024; Asmawanti-S et al., 2025); citizen experience is thus the empirical terrain on which public value is created or eroded.

Citizen experience should therefore not be interpreted simply as an indicator of user satisfaction. Previous studies have consistently demonstrated strong relationships between citizen experience, institutional trust and perceived service quality (Welch, Hinnant and Moon, 2005; Carter and Bélanger, 2005), and recent evidence shows that perceived government responsiveness moderates the link between citizen expectations, participation and satisfaction (Mo and Beh, 2025). Contemporary digital transformation, however, requires understanding how citizen experience contributes to institutional learning: from an adaptive governance perspective, every citizen–institution interaction is a potential source of organisational knowledge, and systematically analysed feedback enables institutions to identify procedural bottlenecks and redesign administrative processes.

This interpretation is consistent with systemic approaches to public administration, which understand institutional performance as the product of dynamic interactions between governance structures, processes, technologies and citizen engagement (Matei, 2021). Within this framework, citizen experience functions simultaneously as an indicator of governance quality, a source of institutional knowledge and a mechanism through which digital transformation generates public value.

2.3 The Citizen Experience Index as a Governance-Oriented Analytical Framework

Building upon this literature, the paper proposes the Citizen Experience Index (CEI) as an analytical framework for evaluating digital transformation through the perspective of citizen experience. The CEI represents the citizen-centred component of a broader systemic approach to evaluating smart public administration, which also considers process maturity and institutional interaction.

The CEI operationalises this perspective through six complementary dimensions:

- Accessibility – the extent to which digital public services are available and inclusive for different categories of citizens;
- Usability – the clarity, simplicity and efficiency of digital interaction;
- Responsiveness – the capacity of institutions to respond effectively to citizens' requests and interactions;
- Transparency – the visibility and comprehensibility of administrative procedures and decisions;
- Institutional trust – citizens' confidence in the reliability, integrity and security of digital public services;
- Feedback and adaptation – the institutional capacity to collect, analyse and integrate citizen feedback into continuous service improvement.

Transparency is retained as a distinct dimension rather than being subsumed under trust. Recent EU-level evidence indicates that transparency correlates with e-government adoption but does not, by itself, build citizen trust, which is shaped by broader institutional and socio-economic conditions (Eizaguirre et al., 2025). Treating the two dimensions separately therefore allows the framework to capture situations in which citizens trust the security of a service while finding its procedures opaque – a pattern that proves empirically relevant in the Romanian case. These dimensions extend existing e-government evaluation models by explicitly incorporating

the adaptive relationship between citizen experience and institutional learning: rather than treating feedback as a secondary service-quality indicator, the framework recognises it as a strategic governance mechanism (Figure 2).

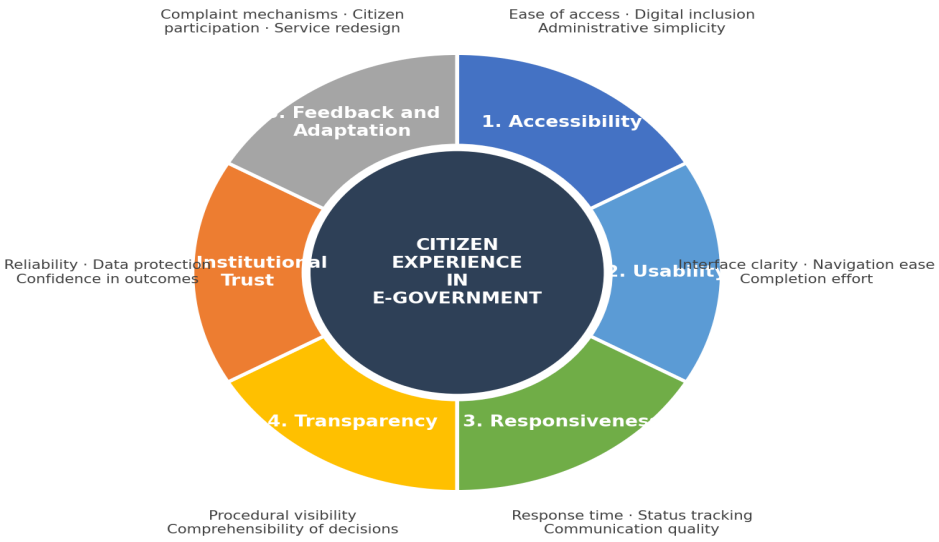


Figure 2: Citizen Experience Evaluation Framework (CEI)

3. Literature Context

Research on digital public services has evolved from a primarily technological understanding of e-government towards broader governance-oriented approaches. Early studies focused on the adoption and diffusion of electronic services, examining perceived usefulness, ease of use, trust and citizens' willingness to interact online (Carter and Bélanger, 2005); they established the relevance of user acceptance and trust, but offered only a partial understanding of the governance implications of digital transformation.

As e-government initiatives matured, scholarly attention progressively shifted from service availability towards service quality, user experience and citizen–government interaction. Frameworks such as e-GovQual and public-sector adaptations of service-quality models introduced multidimensional approaches to evaluating digital public services (Papadomichelaki and Mentzas, 2012), and recent work continues to refine the factors shaping e-government quality from the citizen's perspective (Patergiannaki and Pollalis, 2024; Suradi, Purnomo and Hendry, 2026). This shift recognised that the existence of digital services does not necessarily imply meaningful improvement in the quality of citizen experience.

More recent literature has further expanded this perspective by linking digital government to public value, institutional change and adaptive governance (Criado and Gil-Garcia, 2021; Haug, Dan and Mergel, 2024). The COVID-19 pandemic acted as a catalyst for this research agenda: governments worldwide accelerated digital service delivery under crisis conditions, and comparative studies of pandemic-era digital performance demonstrated that institutional capacity, rather than technology alone, determined the effectiveness of digital responses (Kwong and Wong, 2026; United Nations, 2024). In parallel, a rapidly growing body of research examines the adoption of artificial intelligence in public administration, highlighting both its potential to improve responsiveness and personalisation and the governance challenges it raises for accountability, transparency and trust (Wirtz, Weyerer and Geyer, 2019; Madan and Ashok, 2023; Medaglia, Gil-Garcia and Pardo, 2023).

Citizen trust has emerged as a central theme in this post-pandemic literature: digital government can increase public trust through both institution-based and process-based mechanisms (Chen and Jiang, 2025), yet systematic reviews emphasise that these trust-building effects are conditional on service quality, transparency and responsiveness rather than automatic (Nyadzi and Morris, 2026; OECD, 2023a), and EU-level evidence shows

that infrastructure, transparency and mobile compatibility influence adoption in distinct ways across member states (Eizaguirre et al., 2025).

This development is particularly relevant for Central and Eastern European countries, where digitalisation has advanced unevenly across institutions and administrative levels. Research on Romania has repeatedly identified a gap between investment in digital infrastructure and citizens' actual use, trust and satisfaction with digital public services (Androniceanu, 2020; Matei and Săvulescu, 2021; OECD, 2023b). Recent comparative analyses confirm that e-government performance in the region is closely linked to governance quality and institutional capacity (Lobonț et al., 2025; Bădîrcea et al., 2026; Joia and Altieri, 2021). Such gaps are often linked to fragmented administrative structures, limited interoperability, insufficient user-centred design and weak feedback mechanisms.

A further limitation of existing approaches concerns feedback and institutional adaptation: most frameworks assess digital services at a given moment in time, but pay less attention to whether institutions systematically learn from citizen interactions (European Commission, 2024). Yet, in a genuinely citizen-centred model of digital transformation, feedback is a governance mechanism through which public institutions identify problems, redesign processes and create public value.

Against this background, the present study proposes the CEI as a governance-oriented evaluation framework that extends existing approaches in three ways: it integrates six dimensions within a single analytical model; it evaluates the relational quality of citizen–administration interaction rather than only technological performance; and it treats feedback and adaptation as indicators of institutional learning and smart governance maturity.

4. Methodology

4.1 Research Design

We adopt an exploratory mixed-methods design, examining how citizens experience digital public services and how institutions respond to these interactions. A triangulation strategy integrates documentary evidence, structured platform assessment and qualitative institutional insights, supporting the interpretation of citizen experience as an indicator of governance quality rather than merely user satisfaction.

4.2 Platform Selection

Five Romanian digital public service platforms were selected for comparative evaluation: ANAF e-Tax Services (fiscal administration); Ghișeul.ro (national electronic payment platform); MySMIS (EU funds management platform); CNAS Online Services (healthcare administration); and a representative municipal portal (local government digital services). The selection was guided by three criteria: institutional relevance; frequency and diversity of citizen interaction; and variation in governance context, allowing comparison between central and local government. Together, the platforms provide variation across administrative levels, institutional functions and degrees of interaction complexity.

4.3 The Citizen Experience Index (CEI)

Each platform was evaluated across the six dimensions defined in Section 2.3: Accessibility (A), Usability (U), Responsiveness (R), Transparency (TR), Institutional Trust (T), and Feedback and Adaptation (F). These dimensions extend existing e-government evaluation models (Carter and Bélanger, 2005; Papadomichelaki and Mentzas, 2012) by explicitly incorporating the adaptive relationship between citizen experience and institutional learning.

Scores were assigned on a five-point scale from 1 (very low) to 5 (very high) using predefined qualitative criteria for each dimension, combining document analysis, structured platform observation, expert review, qualitative interview evidence and comparative interpretation. The overall CEI score was calculated as the arithmetic mean of the six dimensions:

$$CEI = (A + U + R + TR + T + F) / 6$$

For interpretative purposes, four governance maturity levels were established: 1.0–2.0 (low citizen-centred maturity); 2.1–3.0 (limited digital interaction quality); 3.1–4.0 (moderate citizen-centred performance); and 4.1–5.0 (advanced smart governance orientation). The CEI does not seek statistical representativeness; it provides a structured analytical framework for identifying governance patterns, citizen-experience gaps and institutional learning opportunities.

4.4 Qualitative Insights and Triangulation

Semi-structured interviews with institutional actors and qualitative observations from citizen users contextualised the platform assessments. Participants included representatives of institutions involved in digital service provision, digital governance specialists and stakeholders familiar with Romanian e-government initiatives. Thematic analysis identified recurring patterns across the six CEI dimensions, strengthening the credibility of the findings and connecting citizen experience with institutional adaptation.

5. Results and Discussion

Table 1 presents the comparative Citizen Experience Index scores for the five evaluated Romanian digital public service platforms across the six analytical dimensions.

Table 1: Citizen Experience Index – comparative evaluation of Romanian e-government platforms

Platform	Access. (A)	Usability (U)	Respons. (R)	Transp. (TR)	Trust (T)	Feedb. (F)	CEI	Maturity level
ANAF (e-Tax Services)	3.0	2.5	2.0	2.5	3.0	1.5	2.4	Limited
Ghișeul.ro	4.0	4.0	3.5	4.0	4.0	2.5	3.7	Moderate
MySMIS	3.0	3.0	3.0	2.5	3.0	2.0	2.8	Limited
CNAS (Online Services)	3.5	3.0	2.5	2.5	3.0	1.5	2.7	Limited
Municipal Portal (example)	2.0	2.0	1.5	1.5	2.0	1.0	1.7	Low

Note: Scores based on structured expert review, document analysis and qualitative data. Scale: 1 (very low) – 5 (very high). CEI = mean of the six dimension scores. Source: Authors' own conception.

5.1 Comparative CEI Profiles

Differences among Romanian digital public services, the comparison shows, extend well beyond technological implementation: they reflect distinct levels of citizen-centred governance maturity. Ghișeul.ro achieves the highest overall score (3.7), reflecting the most balanced performance across all dimensions, while the representative municipal portal records the lowest (1.7), revealing substantial limitations in local digital governance capacity. ANAF, MySMIS and CNAS occupy intermediate positions: despite moderate levels of digitalisation and service availability, they perform less successfully in dimensions associated with citizen interaction, responsiveness and organisational adaptation.

The comparative profiles are visualised in Figure 3. Notably, the Feedback and Adaptation dimension records the lowest score on every platform – a pattern examined in Sections 5.6 and 6.3.

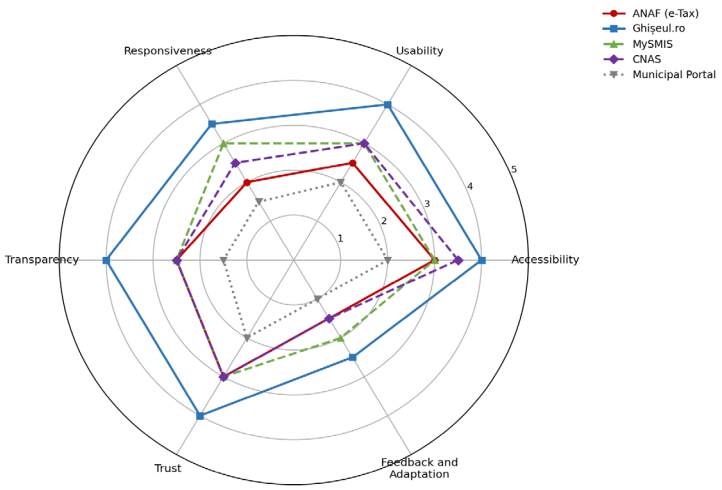


Figure 3: Comparative citizen experience profiles across selected Romanian e-government platforms

5.2 ANAF (e-Tax Services): CEI 2.4 – Functional Digitalisation without User Orientation

The ANAF platform illustrates functional digitalisation without citizen-centred transformation: although citizens can complete tax procedures electronically, successful interaction often requires considerable administrative knowledge, procedural familiarity and tolerance for process ambiguity. The service works; the relationship does not. The platform's weakest dimensions – Responsiveness (2.0) and Feedback and Adaptation (1.5) – indicate limited institutional capacity to engage meaningfully with citizens once digital transactions have been initiated. Interview evidence confirms that requests submitted through official channels frequently receive standardised responses that rarely address individual circumstances. As one institutional participant observed: "ANAF measures compliance, not experience. Those are very different things."

The distinction between the Trust score (3.0) and the Transparency score (2.5) is analytically revealing: citizens generally trust ANAF to process tax information securely but express considerably lower confidence regarding procedural clarity, communication quality and the comprehensibility of administrative decisions. This dissociation empirically supports the treatment of transparency and trust as distinct dimensions, and illustrates the broader difference between digital administration and digital transformation: procedures have been successfully digitalised, yet organisational practices remain largely unchanged.

5.3 Ghișeul.ro: CEI 3.7 – The Positive Outlier and Its Limits

Ghișeul.ro is the clear positive outlier, corresponding to moderate-to-advanced citizen-centred maturity. Its highest scores – Accessibility (4.0), Usability (4.0), Transparency (4.0) and Trust (4.0) – reflect an interface deliberately designed around user simplicity and clearly defined administrative processes. Nevertheless, even this positive example reveals limitations: the Feedback and Adaptation dimension receives only 2.5, indicating that mechanisms capable of systematically integrating citizen experience into service improvement remain relatively weak. This finding suggests that the absence of institutional learning mechanisms represents a systemic characteristic rather than an isolated weakness of individual platforms. Ghișeul.ro demonstrates that citizen-centred digital services are achievable within the Romanian administrative context when usability, simplicity and procedural transparency become explicit design priorities.

5.4 MySMIS and CNAS: CEI 2.8 and 2.7 – Complexity without Institutional Adaptation

Although MySMIS (2.8) and CNAS (2.7) achieve similar overall scores, the factors explaining their performance differ. For MySMIS, the principal challenge derives from procedural complexity rather than technological capability: the platform supports highly regulated European funding processes characterised by multiple procedural stages, extensive documentation requirements and frequent regulatory updates. Participants consistently described digital interaction interrupted by procedural uncertainty, leading users to revert to email or direct institutional contact. The CNAS platform presents a different profile: its relatively strong Accessibility score (3.5) reflects substantial progress in expanding digital healthcare services, but weaker scores for Responsiveness (2.5) and Feedback and Adaptation (1.5) indicate that citizens frequently encounter difficulties in resolving problems, obtaining meaningful status updates or understanding administrative decisions. Both cases demonstrate that digital service availability does not necessarily generate positive citizen experience when institutional support mechanisms remain underdeveloped.

5.5 Municipal Portal: CEI 1.7 – The Local Governance Challenge

The representative municipal portal records the lowest overall performance, corresponding to low citizen-centred maturity, with weak scores across all six dimensions. These finding matters because many of citizens' most frequent interactions with public administration occur at local level – taxation, permits, social services, urban planning – so weaknesses in municipal digital governance directly shape citizens' overall perception of public administration. Successful digital transformation cannot rely exclusively on national platforms; it requires strengthening organisational capacity, citizen-centred design and institutional learning mechanisms across all administrative levels.

5.6 Cross-platform Patterns

Four patterns stand out across the five platforms. First, the availability of digital services does not automatically translate into positive citizen experience: several platforms provide substantial online functionality while performing poorly on usability, responsiveness or trust. Second, Responsiveness and Feedback and Adaptation consistently represent the weakest dimensions, suggesting that Romanian digital public services remain predominantly transaction-oriented rather than learning-oriented. Third, significant differences persist between

national and local administrative contexts, with local administrations facing greater organisational and institutional constraints.

Fourth, the Transparency dimension follows the general pattern closely: it is strong only where citizen-centred design is an explicit priority (Ghișeul.ro) and weak elsewhere, reinforcing the interpretation that procedural transparency is a design choice rather than an automatic by-product of digitalisation. The degree of meaningful interactivity also appears to depend on the type of service and the complexity of the underlying administrative process: relatively simple transactional services (payments) achieve higher citizen-centred maturity than complex, multi-stage procedures (EU funds management, healthcare administration), indicating that context and service sophistication condition the quality of citizen–government interaction.

Perhaps the least expected finding is the uniformity of the feedback deficit: even the best-performing platform lacks systematic mechanisms for transforming citizen input into service redesign. The principal challenge facing Romanian digital transformation is therefore no longer the digitalisation of services but the development of institutions capable of continuously learning from citizen experience.

6. Discussion: Repositioning Citizen Experience in Digital Governance

6.1 Beyond Digitalisation: The Citizen Experience Gap

Our findings reveal a persistent gap between digitalisation efforts and the actual quality of citizen–administration interactions, challenging the assumption that technological deployment is, by itself, sufficient to improve governance performance. Digitalisation should instead be understood as an enabling process supporting broader institutional transformation. More fundamentally, the findings reinforce the conceptual distinction between digitalisation and digital transformation: digitalisation may successfully convert existing administrative procedures into electronic services without changing the way institutions operate, whereas digital transformation requires organisational learning, process redesign and continuous adaptation based on evidence generated through citizen interaction (Haug, Dan and Mergel, 2024).

6.2 Citizen Experience as a Strategic Governance Resource

We contend that citizen experience is not merely a service-quality indicator; it is a strategic governance resource. Traditional frameworks assess outputs such as the number of online services or transaction volumes, which demonstrate whether digital services exist but reveal little about whether they respond to citizens' expectations. From a public value perspective, citizen experience offers insight into the extent to which institutions transform technological capabilities into meaningful social outcomes (Moore, 1995; Asmawanti-S et al., 2025), functioning simultaneously as an evaluation criterion, an indicator of governance effectiveness and a strategic resource supporting institutional adaptation.

6.3 From Citizen Feedback to Institutional Learning

The consistently low Feedback and Adaptation scores indicate that effective feedback loops are missing precisely where they matter most: without them, institutions cannot identify citizens' evolving needs, and digitalisation risks reproducing existing administrative inefficiencies in electronic form. Citizen feedback constitutes institutional knowledge capable of revealing procedural bottlenecks and informing administrative redesign. Put simply, digital transformation without institutional learning produces digital administration – not intelligent public administration.

6.4 Multi-level Governance and the Local Administration Challenge

The municipal portal's weak performance highlights the uneven distribution of digital governance capacity across administrative levels: national platforms benefit from greater investment and political visibility, whereas local administrations face persistent organisational, financial and technical constraints. Successful digital transformation therefore requires coordinated action across all levels of government (OECD, 2023b).

6.5 Towards Intelligent Public Administration in the Age of AI

Taken together, our findings support a reconceptualisation of smart public administration as a governance model centred on citizen experience, institutional learning and public value creation, in which digital government maturity is measured by the institutional capacity to understand citizens' needs, generate trust, incorporate feedback and continuously improve services.

The accelerating adoption of AI in the public sector reshapes the research questions surrounding citizen experience. AI technologies – conversational interfaces, automated case handling, predictive service delivery –

introduce a new layer of citizen–government interaction whose quality cannot be captured by infrastructure-based indicators (Wirtz, Weyerer and Geyer, 2019; Medaglia, Gil-Garcia and Pardo, 2023). On the one hand, AI-driven analysis of citizen feedback could substantially strengthen the Feedback and Adaptation dimension by enabling institutions to process interaction evidence at scale and in real time (Madan and Ashok, 2023). On the other hand, algorithmic opacity poses direct challenges to the Transparency and Trust dimensions, since citizens may be unable to understand how automated decisions are reached (United Nations, 2024). The CEI therefore provides a timely analytical basis for evaluating whether AI adoption enhances or erodes citizen-centred governance – a question that conventional digital maturity assessments are not designed to answer.

Although the empirical analysis focuses on Romanian e-government services, the framework has broader relevance, supporting comparative assessments across administrative contexts and providing policymakers with practical evidence for service redesign and governance innovation.

7. Conclusion

By proposing and applying the Citizen Experience Index, we have sought to reposition citizen experience from a secondary service-quality measure to an analytical framework for citizen-centred evaluation of digital transformation. The comparative assessment of five Romanian platforms demonstrates significant differences not only in technological maturity but also in accessibility, usability, responsiveness, transparency, institutional trust and feedback adaptation – dimensions that technology-centred indicators cannot capture.

The most significant contribution concerns the role of citizen feedback: its consistently weak performance shows that opportunities to transform citizen interactions into institutional knowledge remain largely underdeveloped. The Romanian case reflects a broader challenge – investments in digital infrastructure have expanded the availability of online services, but organisational learning, adaptive governance and citizen-centred process redesign have not progressed at the same pace.

We have argued that the defining characteristic of intelligent public administration is not the sophistication of the technologies it deploys, but its capacity to learn – continuously – from citizen experience and to transform this learning into adaptive governance and public value. Digital technologies therefore represent enabling instruments rather than objectives in themselves. Future research should validate the framework through large-scale citizen surveys, comparative analyses across administrative systems and longitudinal assessments of institutional learning, and should explore integrating citizen experience indicators with AI-supported public service evaluation and data-driven governance models.

Ethics Declaration: Ethical clearance was not required for this research. The data collected were fully anonymised and participation was voluntary. No personally identifiable information was retained.

AI Declaration: Artificial intelligence tools were used to support language refinement, text editing and the structural organisation of the manuscript, as well as to assist in identifying recent literature, which was subsequently verified by the author. All conceptual development, analysis, interpretation and final content were reviewed and validated by the author.

References

Androniceanu, A. (2020) “Digitalization of public administration in Romania: current trends and challenges”, Administrație și Management Public, Vol 34, pp 7–20.

Asmawanti-S, D., Afiah, N.N., Ritchi, H. and Suharman, H. (2025) “Literature review of government digital services based on public value theory and citizen satisfaction”, Cogent Business and Management, Vol 12.

Bădîrcea, R.M., Olaru, S.M., Doran, N.M. and Manta, A.G. (2026) “E-government adoption, governance quality, and fiscal sustainability in Central and Eastern European countries”, Sustainability, Vol 18.

Bélanger, F. and Carter, L. (2008) “Trust and risk in e-government adoption”, The Journal of Strategic Information Systems, Vol 17, No. 2, pp 165–176.

Carter, L. and Bélanger, F. (2005) “The utilization of e-government services: citizen trust, innovation and acceptance factors”, Information Systems Journal, Vol 15, No. 1, pp 5–25.

Chen, X. and Jiang, H. (2025) “Bridging trust through institution and process: how does digital government increase public trust?”, Public Management Review.

Criado, J.I. and Gil-Garcia, J.R. (2021) “Delivering public services in the digital era: digital government and citizen-centred governance”, Government Information Quarterly.

Dunleavy, P., Margetts, H., Bastow, S. and Tinkler, J. (2006) “New public management is dead – long live digital-era governance”, Journal of Public Administration Research and Theory, Vol 16, No. 3, pp 467–494.

Eizaguirre, M., Gómez Funes, A., García-Monleón, F. and Carrero, O. (2025) "Bridging digital divides: infrastructure, transparency and mobile compatibility in citizen-centric e-governance across the EU", European Journal of Innovation Management.

European Commission (2024) eGovernment Benchmark 2024, Publications Office of the European Union, Luxembourg.

Haug, N., Dan, S. and Mergel, I. (2024) "Digitally-induced change in the public sector: a systematic review and research agenda", Public Management Review, Vol 26, No. 7, pp 1963–1987.

Joia, L.A. and Altieri, D. (2021) "Assessing citizen adoption of e-government initiatives in developing and emerging countries: a systematic review", Information Development, Vol 37, No. 2, pp 246–266.

Kwong, Y.-H. and Wong, M.Y.H. (2026) "E-government in global health crisis: comparing the e-performance of COVID-19 contact tracing", International Journal of Health Planning and Management.

Lobonț, O.R., Criste, C., Vintilă, A.I. and Crăciun, A. (2025) "Assessing digital performance of public services in the EU: e-governance and technology", Systems, Vol 13.

Madan, R. and Ashok, M. (2023) "AI adoption and diffusion in public administration: a systematic literature review and future research agenda", Government Information Quarterly, Vol 40, No. 1, 101774.

Matei, A. (2021) "Systemics of public administration", in Farazmand, A. (ed.) Global Encyclopedia of Public Administration, Public Policy, and Governance, Springer, Cham.

Matei, A. and Săvulescu, C. (2021) "Digitalization and public administration reform in Central and Eastern Europe", Transylvanian Review of Administrative Sciences, Vol 63E, pp 5–20.

Medaglia, R., Gil-Garcia, J.R. and Pardo, T.A. (2023) "Artificial intelligence in government: taking stock and moving forward", Social Science Computer Review, Vol 41, No. 1, pp 123–140.

Mergel, I., Edelmann, N. and Haug, N. (2019) "Defining digital transformation: results from expert interviews", Government Information Quarterly, Vol 36, No. 4, 101385.

Mo, H. and Beh, L.-S. (2025) "From expectation and participation to satisfaction: the moderating role of perceived government responsiveness in digital government", Administrative Sciences, Vol 15.

Moore, M.H. (1995) Creating Public Value: Strategic Management in Government, Harvard University Press, Cambridge, MA.

Nyadzi, B.K. and Morris, J.C. (2026) "E-government and public trust in developing countries: a systematic review and research agenda", International Journal of Public Administration.

OECD (2020) The OECD Digital Government Policy Framework: Six Dimensions of a Digital Government, OECD Publishing, Paris.

OECD (2023a) Building Trust and Reinforcing Democracy, OECD Publishing, Paris.

OECD (2023b) Digital Government Review of Romania: Towards a Digitally Mature Government, OECD Digital Government Studies, OECD Publishing, Paris.

Papadomichelaki, X. and Mentzas, G. (2012) "e-GovQual: a multiple-item scale for assessing e-government service quality", Government Information Quarterly, Vol 29, No. 1, pp 98–109.

Patergiannaki, Z. and Pollalis, Y. (2024) "E-government quality from the citizen's perspective: the role of perceived factors", International Journal of Public Sector Management.

Scholta, H. and Lindgren, I. (2023) "Proactivity in digital public services: a conceptual analysis", Government Information Quarterly, Vol 40, No. 3, 101832.

Setyawan, N.H., Sulistyo, S. and Hartanto, R. (2024) "A review of e-government implementation: its impact on public value creation and citizen perspectives", Proceedings of the 2024 International Conference on Smart Computing, IoT and Machine Learning (SIML), IEEE, pp 132–137.

Suradi, A., Purnomo, H.D. and Hendry (2026) "A user-centred e-government service design framework to enhance public trust in sustainable policies", Engineering, Technology and Applied Science Research, Vol 16, No. 1.

United Nations (2024) United Nations E-Government Survey 2024: Accelerating Digital Transformation for Sustainable Development, with the Addendum on Artificial Intelligence, United Nations, New York.

Welch, E.W., Hinnant, C.C. and Moon, M.J. (2005) "Linking citizen satisfaction with e-government and trust in government", Journal of Public Administration Research and Theory, Vol 15, No. 3, pp 371–391.

Wirtz, B.W., Weyerer, J.C. and Geyer, C. (2019) "Artificial intelligence and the public sector: applications and challenges", International Journal of Public Administration, Vol 42, No. 7, pp 596–615.

Hybrid Human-AI Decision-making Models: A Conceptual Framework for Organizational Integration and Strategic Implementation

Azam Bejou
West Virginia State University, West Virginia, USA

abejou@msn.com

Abstract: This paper synthesizes existing research to establish a comprehensive taxonomy of hybrid models, categorizing them by their reliance on human oversight, algorithmic automation, and collaborative dynamics. By delineating the interplay between machine efficiency and human judgment, this framework provides practitioners with a strategic toolkit to navigate the operational challenges inherent in modern socio-technical systems (Fabri et al., 2023; Rivero, 2025). Furthermore, the taxonomy emphasizes how task complexity and operational risk dictate the optimal alignment between human agency and algorithmic processing (Hillebrand et al., 2025). This synthesis identifies key paradigms, ranging from autonomous execution to collaborative exploration—that define the current landscape of human-AI interaction (Li & Tian, 2025; Sherson et al., 2023). By mapping these dynamics to specific decision typologies, the research offers a structured methodology for leaders to balance algorithmic performance with necessary human accountability (Li & Tian, 2025). Ultimately, these insights enable organizations to move beyond ad-hoc implementations toward a systematic governance approach that optimizes the division of labor between human intuition and computational precision (Fabri et al., 2023).

Keywords: Hybrid intelligence, Algorithmic governance, Human-in-the-loop systems, Decision-making taxonomy, Organizational socio-technical design

1. Introduction

Hybrid Human-AI decision-making - Hybrid human-AI decision-making refers to organizational architectures that synthesize the computational speed and pattern recognition of algorithmic systems with the contextual judgment and ethical discernment of human decision-makers (Hillebrand et al., 2025; Inuwa-Dutse et al., 2023). This integration moves beyond simple task automation by creating dynamic epistemic relationships where neither party acts in isolation (Engin, 2025). Rather, these systems function as integrated workflows where both machine-led data processing and human-led interpretation iteratively refine organizational outputs. This collaborative entanglement allows for the management of complex, ambiguous tasks that require both objective data analysis and nuanced, value-based reasoning (Fabri et al., 2023). In this context, the shift from task-based automation to collaborative hybridity reflects a fundamental transition in organizational design, where the locus of agency is redistributed across socio-technical interfaces (Boos, 2024; Puranam, 2021). This systemic reconfiguration necessitates the formal redesign of decision rights to clarify accountability frameworks, ensuring that roles are explicitly defined rather than implicitly assumed (Westover, 2025). Organizations must move beyond treating this interaction as a peripheral support function, instead embedding it into their operational core to address the persistent tensions between algorithmic scale and human expertise (Cheriyan, 2025; O'Doherty et al., 2025). Transformation of these decision-making structures is particularly critical as organizations grapple with the evolving, dynamic nature of AI systems that increasingly assume greater agency in domains traditionally reserved for human experts (Engin, 2025).

Research questions - This study addresses two primary inquiries: What specific taxonomical types of hybrid human-AI decision-making models can be identified based on their structural interaction, and how do these models diverge in terms of decision-making authority, cognitive load distribution, and operational performance outcomes (Ebel et al., 2021; Sen & Jakkaraju, 2025)? Next, how do they differ in authority, interaction, and outcomes? Finally, the study outlines a series of managerial implications, offering a prescriptive framework to assist leaders in navigating the strategic deployment of these hybrid architectures across diverse institutional contexts (Andrew, 2025; Li & Tian, 2025).

2. Theoretical Foundations

Human decision-making limits (bounded rationality, cognitive load) - Cognitive constraints, such as bounded rationality and the heuristic-driven shortcuts inherent in managerial judgment, frequently lead to suboptimal outcomes in complex, high-velocity environments. These limitations are further compounded by the illusion of explanatory depth, wherein individuals overestimate their comprehension of complex systems while failing to account for the systemic biases inherent in their own mental models (Wang, 2025). Conversely, algorithmic decision-making offers a mechanism to bypass these biological limitations by processing vast datasets without

the fatigue or affective influence that often compromises human-led judgment. However, such systems are constrained by their reliance on historical data patterns, which may fail to capture novel environmental shifts that require the adaptive, context-sensitive reasoning unique to human cognition (Fabri et al., 2023; Hillebrand et al., 2025).

AI in decision support (predictive analytics, optimization, recommendation systems) - AI systems function as sophisticated engines for predictive analytics and optimization, enabling the identification of latent patterns within high-dimensional datasets that exceed human perceptual capacity. These systems transform raw informational inputs into actionable insights, providing real-time recommendations that augment the quality of strategic deliberations. Beyond their predictive utility, these tools act as dual-valence artifacts that simultaneously reduce cognitive load through task automation while escalating new demands for interpretative oversight and algorithmic literacy (Wang & Lin, 2025).

Behavioral decision theory & human-AI collaboration - This interdisciplinary domain examines how the interplay between human and AI shapes organizational search processes (Sen & Jakkaraju, 2025). By integrating these variables into a unified model, firms can better navigate the transition from traditional managerial judgment toward augmented systems that mitigate the pitfalls of bounded rationality (Csaszar et al., 2024; Meyer, 2024). Furthermore, this theoretical synthesis emphasizes that successful collaboration requires intentional design to prevent the "automation bias" that often leads human actors to defer uncritically to machine outputs, even when those outputs conflict with superior situational evidence (Boyacı et al., 2023).

3. Hybrid Human-AI Decision-making Models

Core contribution: describe 12+ hybrid models - these models are categorized based on the degree of human intervention and the specific functional objective within the decision pipeline, ranging from supportive augmentation to autonomous oversight (Gonesh et al., 2023). By systematizing these interactions, organizations can achieve a strategic balance that leverages AI's analytical precision while safeguarding the nuanced judgment and ethical accountability inherent in human leadership (Kuzmanko & Vrbová, 2025; Mohammed et al., 2025). These architectures operationalize decision-making as a collaborative continuum, wherein the distribution of authority is dynamically adjusted based on task complexity, stakeholder impact, and the necessity for explainable outcomes (Mohammed et al., 2025; The Symbiotic Relationship of Humans and AI, 2025). This conceptual taxonomy provides a structured framework for evaluating the fit between specific AI capabilities and the diverse typologies of managerial decisions (Li & Tian, 2025).

Human-in-the-loop Models

- AI recommends, human decides - This model functions by tasking the AI with surfacing actionable insights from large datasets, which the human stakeholder then reviews to finalize the decision based on contextual factors (Frenette, 2024). This workflow allows users to adjust or override system outputs, thereby increasing trust and ensuring that the final choice remains aligned with strategic organizational objectives (FURDUESCU, 2025). This process effectively maintains human accountability for high-stakes outcomes while utilizing machine efficiency to screen vast quantities of information (Haesevoets et al., 2021).
- Human decides, AI validates - In this configuration, the human stakeholder initiates the primary course of action, while the AI performs a real-time audit to identify potential errors, inconsistencies, or alignment gaps with pre-established decision constraints (Nwachukwu et al., 2025). This retrospective verification acts as a fail-safe mechanism, ensuring that subjective judgments do not violate critical operational boundaries or compliance requirements (Saberi, 2022).
- AI decides, human supervises - In this arrangement, the algorithmic agent executes micro-decisions within defined operational parameters, while the human agent maintains high-level oversight to monitor performance trends and intervene only when anomalous outcomes or systemic deviations occur (Kowald et al., 2024). This "human-on-the-loop" approach facilitates high-frequency operations while reserving cognitive bandwidth for strategic adjustments to system objectives or constraints (Gill & Gosine-Boodoo, 2025).

AI-Augmented Decision Models

- Scenario simulation + human judgment - This model utilizes predictive algorithms to project multiple potential futures, allowing decision-makers to stress-test their intuition against a range of simulated outcomes (Xu et al., 2025). By evaluating these divergent paths, leaders can stress-test strategic

assumptions against quantified risks, thereby enhancing the robustness of their long-term planning. This synthesis allows managers to navigate uncertainty by visualizing the downstream impact of their strategic choices before finalizing resource commitments (Klöckner & Thoring, 2024).

- Predictive analytics + human interpretation - This model employs advanced data processing to identify underlying trends and statistical correlations, providing a foundation for human stakeholders to provide qualitative context and subjective reasoning (Vudugula et al., 2023). This synthesis ensures that raw algorithmic outputs are translated into actionable, context-aware strategies that reflect organizational values and long-term goals (ARADHYULA, 2024).
- Optimization with human constraints - This model incorporates specific organizational requirements, ethical thresholds, or resource limitations directly into the algorithmic objective function to ensure that generated solutions remain compliant with operational mandates.

Cognitive & Governance Models

- Bias mitigation model - This approach integrates specialized algorithms designed to detect and quantify discriminatory patterns, serving as a secondary layer of scrutiny that alerts human operators to potential fairness violations (Buckley et al., 2025). By leveraging explainability tools, this model empowers human overseers to audit the rationale behind specific recommendations, thereby reinforcing both institutional accountability and ethical alignment.
- Trust calibration model - This model utilizes real-time performance feedback and transparency metrics to adjust the user's level of reliance based on the system's historical reliability and current confidence scores. By dynamically surfacing uncertainty estimates, this framework prevents over-trust in volatile environments while encouraging active engagement when algorithmic confidence is low (Spera & Agrawal, 2025).
- Accountability balancing model - This framework assigns explicit responsibility for specific decision stages to either the human or the AI, ensuring clear attribution for errors or successes within the governance structure (Farayola et al., 2024). By establishing such accountable boundaries, organizations can proactively address the challenges of competing interests and varying risk tolerances among stakeholders (Koripalli, 2025).

4. Comparative Analysis of Hybrid Models

Compare models - The models are compared according to the following 4 factors - Decision authority, speed-to-accuracy trade-offs, cognitive workload intensity, and the distribution of risk and accountability.

- Decision authority - this factor evaluates the degree of autonomy granted to the algorithmic agent versus the human overseer, mapping the shift from human-centric control to autonomous machine execution. This continuum defines the governance hierarchy, determining whether the AI serves as a passive analytical tool or a proactive executor of high-stakes operational choices (Rooy, 2024). This analytical dimension further elucidates how varying levels of machine autonomy necessitate distinct oversight mechanisms to ensure alignment with institutional ethical mandates (Lin, 2024).
- Speed vs accuracy - This dimension assesses the inverse relationship between rapid algorithmic processing and the meticulous refinement required by human intervention. While automation optimizes throughput for high-volume tasks, incorporating human oversight is essential to mitigate contextual insensitivity and algorithmic bias (Selvam & Vallejo, 2025). Optimal hybrid integration strategies often involve a calibration of this trade-off, prioritizing algorithmic speed in routine operations while mandating human deliberation for complex, high-variance scenarios (Agrawal & Cleland-Huang, 2021; Leslie et al., 2024).
- Cognitive load - this metric examines the mental capacity required by human operators to synthesize, interpret, and validate AI-generated outputs within a given decision cycle. High-frequency interactions often necessitate intuitive interfaces to prevent mental fatigue, as excessive monitoring of automated systems can lead to vigilance decrements. Consequently, the design of decision environments must incorporate adaptive load-balancing techniques to preserve human oversight effectiveness during prolonged monitoring tasks (Joshi, 2025).
- Risk and accountability - this factor delineates the distribution of liability for erroneous outcomes, particularly in scenarios where delegated agency complicates traditional legal or operational blame. Establishing clear accountability frameworks requires pre-design analysis to evaluate situational criticality, ensuring that human intervention is mandated when the severity of potential consequences exceeds the operational limits of automated agents (Abbass, 2019; Devitt, 2024).

- Trade-offs and insights - Effective hybrid integration requires organizations to recognize that no universal distribution of tasks exists; instead, optimal interaction modes must be calibrated based on specific situational demands and the varying capabilities of human and automated agents (Leyli-Abadi et al., 2025). Successful implementation depends upon aligning the chosen model with the organization's specific tolerance for risk and its existing regulatory requirements regarding human-in-the-loop mandates (Faas et al., 2025). Moreover, leadership must cultivate a culture of continuous assessment, where the performance of hybrid systems is systematically audited to refine the balance between automation and human judgment.

5. Managerial Implications

Guidance for choosing appropriate hybrid models - Managers should initiate selection by mapping the specific decision-making task against the required levels of ethical oversight, regulatory compliance, and cognitive complexity. This diagnostic process ensures that the selected framework aligns with institutional risk tolerance while mitigating the systemic biases inherent in autonomous processes (Yuanjun et al., 2025). Furthermore, leaders must establish robust transparency architectures that connect automated processing with clear accountability protocols, ensuring that hybrid outcomes remain verifiable in high-stakes environments (Torres et al., 2025). Additionally, organizational leaders must assess the long-term impact of algorithmic interaction on human expertise, ensuring that reliance on automated decision-support systems does not atrophy critical analytical skills within the workforce. Additionally, firms must navigate the complex delegation of liability, as the collaborative nature of these systems often obscures the locus of responsibility when errors occur (Huang et al., 2025). Finally, managers should adopt a structured, scalable approach to implementation that prioritizes human-AI collaboration as a means of improving operational outcomes rather than mere automation (Sauer & Burggräf, 2024).

Training, governance, and organizational preparation - Organizations must implement targeted training programs that calibrate human knowledge thresholds, ensuring employees possess the domain expertise required to validate and correct algorithmic outputs effectively (He et al., 2024). Moreover, organizations should foster trust by implementing explainable AI interfaces that clarify the logic behind machine-generated suggestions, thereby enhancing the precision of human-AI interaction (Wen et al., 2025). Furthermore, firms should proactively establish multidisciplinary ethical review boards to evaluate these automated systems, ensuring that governance frameworks evolve in tandem with technological advancements (Patel, 2025). Additionally, managers should focus on optimizing the complementarity potential of these teams by aligning task requirements with the unique strengths of both human judgment and machine precision (Глухов & Синогина, 2025).

Ethical and accountability considerations - Leaders must establish explicit liability frameworks that define agency in hybrid systems, particularly when automated outputs influence high-stakes organizational outcomes (Ramli, 2025; Wilson et al., 2025). This involves instituting rigorous audit trails and explainability protocols to ensure that every algorithmic contribution remains subject to human oversight, thereby aligning technological efficiency with institutional values and regulatory compliance (Frimpong, 2025). Ultimately, the long-term success of these hybrid configurations depends on fostering a symbiotic environment where technology augments rather than replaces human expertise, ensuring that automated systems remain tools for empowerment (Sarioguz & Miser, 2024). Furthermore, sustained competitive advantage relies on executive commitment to integrating these digital capabilities into the core corporate strategy, ensuring that innovation is incentivized rather than stifled by the fear of obsolescence (Tasheva & Karpovich, 2024). To achieve this, firms should prioritize incremental implementation through pilot projects, allowing for iterative refinement and the minimization of operational risks before full-scale deployment (Bruno, 2024).

6. Challenges and Risks

Algorithmic bias - automated systems often reflect and amplify historical prejudices present in training datasets, potentially leading to discriminatory outcomes in recruitment, credit allocation, or resource distribution. Mitigating this risk necessitates the implementation of robust data curation processes and periodic auditing to identify and neutralize embedded biases (Farach et al., 2025; Szajczyk, 2025). - Transparency and explainability gaps - The "black-box" nature of advanced algorithms often obscures the underlying logic behind automated decisions, which can foster mistrust and inhibit effective collaboration between human operators and AI systems (Simón et al., 2024). Consequently, managers must prioritize the adoption of interpretable machine learning

techniques that provide actionable insights, thereby bridging the divide between automated complexity and human understanding (Fisher & Fleming, 2025; Hemmer et al., 2024).

Overreliance on AI - this phenomenon, often characterized as automation bias, involves a decline in human vigilance where decision-makers become passive observers, ultimately weakening the organization's ability to identify systemic errors when algorithmic performance degrades (Walther, 2025). To counter this, organizations should promote a data-driven mindset that encourages employees to actively exercise their domain expertise and critical judgment when reviewing algorithmic insights (Huynh, 2025). Moreover, integrating digital labor into the enterprise requires a fundamental restructuring of workflows and roles to ensure that human-AI collaboration is supported by clear performance metrics (Farach et al., 2025). Furthermore, successful long-term adoption hinges on cultural readiness, necessitating a shift toward organizational designs that value continuous learning and adaptive, innovation-oriented mindsets (Nikzat, 2025).

Human resistance - employees often exhibit techno-skepticism and apprehension regarding job displacement, which can lead to the "not-invented-here" syndrome or active avoidance of algorithmic tools (Ștefan et al., 2024). To mitigate these cultural barriers, organizations must communicate the augmentation value of AI by emphasizing how such tools alleviate cognitive burdens rather than diminishing professional agency (Ng et al., 2021; الحدراوي et al., 2025). Addressing these concerns requires transparent change management strategies that actively involve staff in the design of workflows, thereby transforming potential resistance into a shared commitment to digital transformation (Rahman, 2024). Finally, by linking the integration of these systems to clear professional upskilling pathways, leadership can reinforce the perception that AI is an asset for career growth rather than a replacement for human talent (Grant & Levasseur, 2025; Jadad-Garcia & Jadad, 2024).

7. Future Research Directions

Empirical testing of hybrid models - researchers must shift toward longitudinal case studies that analyze the long-term impact of specific model configurations on organizational performance and employee decision-making autonomy (Ali et al., 2024). Additionally, future inquiries should investigate the cross-cultural variability in trust calibration mechanisms to determine how diverse workforce demographics perceive and engage with AI agents in high-stakes environments (Li et al., 2025). Moreover, there is a critical need to develop standardized audit protocols for assigning accountability in instances where human-AI partnerships yield suboptimal outcomes (Miedema et al., 2025). - Advancing hybrid intelligence frameworks - scholars should explore the design of AI systems capable of supporting nuanced human capabilities such as creativity and emotional intelligence, which remain critical for complex, non-routine decision tasks (Akinnagbe, 2024). Furthermore, future research should investigate how these advancements influence organizational power dynamics and the evolving role of managerial authority in an era of distributed cognitive labor (“International Journal of Multidisciplinary Research and Growth Evaluation,” 2021).

Industry-specific adaptation - investigating how hybrid models function across distinct sectors, such as healthcare, finance, and manufacturing, is essential to determine whether decision-making frameworks require tailored configurations to address unique regulatory and operational constraints (Lin & Chen, 2025; Shukla, 2024). Additionally, future studies should examine the evolution of professional roles and requisite skill sets as AI augmentation fundamentally reshapes the distribution of responsibilities within these specialized domains (Petrescu & Krishen, 2023). Finally, establishing robust ethical frameworks and data governance protocols will be paramount to ensuring these human-AI systems align with organizational values and mitigate risks related to algorithmic bias and privacy (Balbaa & Abdurashidova, 2024).

Human-AI interaction under uncertainty - investigating how decision-makers maintain performance when AI predictive reliability fluctuates is vital for developing resilient collaboration protocols (Söllner et al., 2025). Furthermore, research should explore the role of team-level dynamics and co-learning mechanisms, as these factors significantly influence how collective cognition adapts to the integration of autonomous agents (Li & Tian, 2025). Additionally, scholars should examine the design of effective incentive structures and governance mechanisms to ensure that expert contributions remain aligned with the evolving requirements of hybrid systems (Dellermann et al., 2019).

8. Conclusion

Key takeaways - hybrid decision-making models transcend mere technological integration, functioning instead as foundational shifts in organizational design that necessitate a synergy between algorithmic precision and human judgment. By systematically codifying decision rights and fostering collaborative trust, organizations can

effectively mitigate the risks of deskilling while capitalizing on the unique, complementary strengths of both agents (Natali et al., 2025; Westover, 2025). This evolution requires organizations to treat decision-making architectures as dynamic systems that balance technical sophistication with the nuanced requirements of human authority (Westover, 2025). Ultimately, successful implementation hinges on moving beyond binary views of automation to embrace frameworks that operationalize collective morality and accountability (Kiškis, 2026).

Contribution to theory and practice - this work advances organizational design by mapping the combinatorial space of human-machine interaction, providing practitioners with a taxonomy for reconfiguring decision rights in agentic AI environments (Andrew, 2025). By synthesizing these diverse interaction patterns, the proposed framework serves as a roadmap for leaders navigating the automation-augmentation paradox to cultivate sustainable, high-performing decision ecosystems (O'Doherty et al., 2025; Puranam, 2021). Future scholarship must now bridge the gap between these conceptual archetypes and the real-world complexities of organizational culture, where power asymmetries and human agency are continuously renegotiated (Hillebrand et al., 2025; O'Doherty et al., 2025). Integrating these socio-technical dimensions will prove essential for moving from theoretical taxonomy toward prescriptive guidance in high-stakes organizational contexts (Axelsen et al., 2025; Puranam, 2020). Ultimately, this research underscores that the most resilient organizational architectures are those that treat human-AI collaboration not as a static arrangement, but as a deliberate design problem (Puranam, 2020, 2021). By systematically aligning technical capabilities with organizational decision rights, firms can evolve beyond passive implementation toward a more intentional, symbiotic architecture that empowers human judgment while leveraging the scalability of autonomous systems (Andrew, 2025; Shrestha et al., 2019). In this pursuit, the longitudinal study of these collaborative dynamics remains the next frontier for both management science and organizational engineering (Puranam, 2021; Wang, 2025).

Ethics Declaration: I did not need ethical clearance for the research referred to in this paper

AI Declaration: I did not use any AI tool in the development of this paper.

References

Abedin, B., Meske, C., Junglas, I., Rabhi, F., & Motahari-Nezhad, H. R. (2022). Designing and Managing Human-AI Interactions. *Information Systems Frontiers*, *24*(3), 691. https://doi.org/10.1007/s10796-022-10313-1

Alves, M. M., Seringa, J., Silvestre, T., & Magalhães, T. (2024). Use of Artificial Intelligence tools in supporting decision-making in hospital management. *Research Square (Research Square)*. https://doi.org/10.21203/rs.3.rs-4491119/v1

Bevilacqua, S., Ferraris, A., Matzler, K., & Kuděj, M. (2025). Strategic leadership at high altitude: Investigating how AI affects the required skills of top managers. *Journal of Business Research*, *205*, 115878. https://doi.org/10.1016/j.jbusres.2025.115878

Buschmeyer, K., Hatfield, S., & Zenner, J. (2023). Psychological assessment of AI-based decision support systems: tool development and expected benefits. *Frontiers in Artificial Intelligence*, *6*. https://doi.org/10.3389/frai.2023.1249322

Cahyani, R. R., & Musslifah, A. R. (2025). Balancing bytes and biases: A case study of AI adoption in academic human resource management. *Journal of Educational Management and Instruction (JEMIN)*, *5*(2), 437. https://doi.org/10.22515/jemin.v5i2.11679

Doh, W. (2025). Systematically Predicting and Preventing Overreliance Through the Human-AI-System Concordance (HASC) Matrix and Cognitive Interventions. *Deep Blue (University of Michigan)*. https://doi.org/10.7302/25824

Fenwick, A., Molnár, G., & Frangos, P. (2024). The critical role of HRM in AI-driven digital transformation: a paradigm shift to enable firms to move from AI implementation to human-centric adoption. *Discover Artificial Intelligence*, *4*(1). https://doi.org/10.1007/s44163-024-00125-4

Gans, J. (2025). AI as Strategist. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.5195933

Gladden, M. E., Fortuna, P., & Modliński, A. (2022). The Empowerment of Artificial Intelligence in Post-Digital Organizations: Exploring Human Interactions with Supervisory AI. *Human Technology*, *18*(2), 98. https://doi.org/10.14254/1795-6889.2022.18-2.2

Gölgeci, İ., Ritala, P., Arslan, A., McKenna, B., & Ali, I. (2024). Confronting and alleviating AI resistance in the workplace: An integrative review and a process framework [Review of *Confronting and alleviating AI resistance in the workplace: An integrative review and a process framework*]. *Human Resource Management Review*, *35*(2), 101075. Elsevier BV. https://doi.org/10.1016/j.hrmr.2024.101075

Hao, X., Demir, E., & Eyers, D. (2024). Exploring collaborative decision-making: A quasi-experimental study of human and Generative AI interaction. *Technology in Society*, *78*, 102662. https://doi.org/10.1016/j.techsoc.2024.102662

Hao, X., Demir, E., & Eyers, D. (2025). Beyond human-in-the-loop: Sensemaking between artificial intelligence and human intelligence collaboration. *Sustainable Futures*, *10*, 101152. https://doi.org/10.1016/j.sftr.2025.101152

International Journal of Multidisciplinary Research and Growth Evaluation. (2021). *International Journal of Multidisciplinary Research and Growth Evaluation*. https://doi.org/10.54660/anfo

KAÇMAZ, G. (2021). Araştırma Makalesi. *MAS Journal of Applied Sciences*, *7*(7). https://doi.org/10.52520/masjaps.90

Kolbjørnsrud, V. (2023). Designing the Intelligent Organization: Six Principles for Human-AI Collaboration. *California Management Review*, *66*(2), 44. https://doi.org/10.1177/00081256231211020

Lin, H. (2024). Ethical and Scalable Automation: A Governance and Compliance Framework for Business Applications. *arXiv (Cornell University)*. https://doi.org/10.48550/arxiv.2409.16872

Nair, M., Svedberg, P., Larsson, I., & Nygren, J. (2024). A comprehensive overview of barriers and strategies for AI implementation in healthcare: Mixed-method design [Review of *A comprehensive overview of barriers and strategies for AI implementation in healthcare: Mixed-method design*]. *PLoS ONE*, *19*(8). Public Library of Science. https://doi.org/10.1371/journal.pone.0305949

Review and Research Agenda for Healthcare and Beyond [Review of *AI-induced Deskilling in Medicine: A Mixed-Method Review and Research Agenda for Healthcare and Beyond*]. *Artificial Intelligence Review*, *58*(11). Springer Science+Business Media. https://doi.org/10.1007/s10462-025-11352-1

Navarro-Meneses, F. J., & Pablo-Martí, F. (2025). Reimagining human agency in ai-driven futures: a co-evolutionary scenario framework from aviation. *European Journal of Futures Research*, *13*(1). https://doi.org/10.1186/s40309-025-00260-w

Nguyen, K. M., Bui, T.-T., Pham, H. T., Nguyen, L., Pham, H. T., Gia, L. L., & Nguyen, N. T. (2025). Fostering employees' AI adoption in strategic marketing planning and decision making: a mixed-method study in Vietnam. *Cognition Technology & Work*. https://doi.org/10.1007/s10111-025-00838-1

Page, S. E., & Kallapur, A. (2025). Replace, augment, disrupt: AI & organizational decision-making. *Journal of Organization Design*. https://doi.org/10.1007/s41469-025-00194-4

Proceedings of the 20th Conference on Computer Science and Intelligence Systems (FedCSIS). (2025). *Annals of Computer Science and Information Systems*, *43*. https://doi.org/10.15439/978-83-973291-6-4

Rainy, T. A., Goswami, D., Rabbi, M. M. K., & Maruf, A. A. (2023). *A SYSTEMATIC REVIEW OF AI-ENHANCED DECISION SUPPORT TOOLS IN INFORMATION SYSTEMS: STRATEGIC APPLICATIONS IN SERVICE-ORIENTED ENTERPRISES AND ENTERPRISE PLANNING* [Review of *A SYSTEMATIC REVIEW OF AI-ENHANCED DECISION SUPPORT TOOLS IN INFORMATION SYSTEMS: STRATEGIC APPLICATIONS IN SERVICE-ORIENTED ENTERPRISES AND ENTERPRISE PLANNING*]. *2*(1), 26. https://doi.org/10.63125/73djw422

Raisch, S., & Fomina, K. (2024). Combining Human and Artificial Intelligence: Hybrid Problem-Solving in Organizations. *Academy of Management Review*, *50*(2), 441. https://doi.org/10.5465/amr.2021.0421

Raisch, S., & Krakowski, S. (2021). Artificial Intelligence and Management: The Automation–Augmentation Paradox. *Academy of Management Review*, *46*(1), 192. https://doi.org/10.5465/amr.2018.0072

Ramli, M. (2025). Intelligent Automation for FDI Facilitation: Optimizing Tariff Exemption Processes with OCR And Large Language Models. *arXiv (Cornell University)*. https://doi.org/10.48550/arxiv.2506.12093

Rooy, D. V., & Vaes, K. (2024). Harmonizing human-AI synergy: behavioral science in AI-integrated design. *Proceedings of the Design Society*, *4*, 2287. https://doi.org/10.1017/pds.2024.231

Sarioguz, O., & Miser, E. (2024). ARTIFICIAL INTELLIGENCE AND PARTICIPATORY LEADERSHIP: THE ROLE OF TECHNOLOGICAL TRANSFORMATION IN BUSINESS MANAGEMENT AND ITS IMPACT ON EMPLOYEE PARTICIPATION. *International Research Journal of Modernization in Engineering Technology and Science*. https://doi.org/10.56726/irjmets49539

Schmitt, M. (2024a). Strategic Integration of Artificial Intelligence in the C-Suite: The Role of the Chief AI Officer. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4812654

Schmitt, M. (2024b). Strategic Integration of Artificial Intelligence in the C-Suite: The Role of the Chief AI Officer. *arXiv (Cornell University)*. https://doi.org/10.48550/arxiv.2407.10247

Sellen, A., & Horvitz, E. (2024). The Rise of the AI Co-Pilot: Lessons for Design from Aviation and Beyond. *Communications of the ACM*, *67*(7), 18. https://doi.org/10.1145/3637865

Shrestha, Y. R., Ben-Menahem, S. M., & Krogh, G. von. (2019). Organizational Decision-Making Structures in the Age of Artificial Intelligence. *California Management Review*, *61*(4), 66. https://doi.org/10.1177/0008125619862257

Ştefan, S. C., Olariu, A. A., & Popa, Ştefan C. (2024). Implications of Artificial Intelligence on Organizational Agility: A PLS-SEM and PLS-POS Approach. *Amfiteatru Economic*, *26*(66), 403. https://doi.org/10.24818/ea/2024/66/403

Sudeeptha, I., Mueller, W., Leyer, M., Richter, A., & Nolte, F. (2024). Use Cases for Prospective Sensemaking of Human-AI-Collaboration. *arXiv (Cornell University)*. https://doi.org/10.48550/arxiv.2408.10812

Tallam, K. (2025). From Autonomous Agents to Integrated Systems, A New Paradigm: Orchestrated Distributed Intelligence. *arXiv (Cornell University)*. https://doi.org/10.48550/arxiv.2503.13754

Tasleem, N., Raghav, R. S., Ansari, M., & Sharma, A. (2024). A Decision Intelligence Framework: Integrating Human Intuition with Ai Models. *Journal of Artificial Intelligence General Science (JAIGS) ISSN 3006-4023*, *7*(1), 304. https://doi.org/10.60087/jaigs.v7i01.361

Tjondronegoro, D. (2025). TOAST Framework: A Multidimensional Approach to Ethical and Sustainable AI Integration in Organizations. *arXiv (Cornell University)*. https://doi.org/10.48550/arxiv.2502.00011

Trunk, A., Birkel, H., & Hartmann, E. (2020). On the current state of combining human and artificial intelligence for strategic organizational decision making. *BuR - Business Research*, *13*(3), 875. https://doi.org/10.1007/s40685-020-00133-x

Übellacker, T. (2025). Making Sense of AI Limitations: How Individual Perceptions Shape Organizational Readiness for AI Adoption. *arXiv (Cornell University)*. https://doi.org/10.48550/arxiv.2502.15870

Vincent, V. (2021). Integrating intuition and artificial intelligence in organizational decision-making. *Business Horizons*, *64*(4), 425. https://doi.org/10.1016/j.bushor.2021.02.008

Westover, J. (2025). AI-Augmented Decision Rights: Redesigning Authority in Human-Machine Organizations. *Human Capital Leadership.*, *27*(1). https://doi.org/10.70175/hclreview.2020.27.1.7

Wilson, K., Sim, M., Gueorguieva, A.-M., & Caliskan, A. (2025). *No Thoughts Just AI: Biased LLM Hiring Recommendations Alter Human Decision Making and Limit Human Autonomy*. https://doi.org/10.48550/ARXIV.2509.04404

Woolley, A. W. (2025). Generative AI and collaboration: opportunities for cultivating collective intelligence. *Journal of Organization Design*. https://doi.org/10.1007/s41469-025-00199-z

Wulf, J., Meierhofer, J., & Hannich, F. (2025). Architecting Human-AI Cocreation for Technical Services -- Interaction Modes and Contingency Factors. *arXiv (Cornell University)*. https://doi.org/10.48550/arxiv.2507.14034

Xu, G., Murthy, S. V., & Jia, B. (2025). Enhancing Intuitive Decision-Making and Reliance Through Human–AI Collaboration: A Review. *Informatics*, *12*(4), 135. https://doi.org/10.3390/informatics12040135

Mapping Life Cycle Costing: Methods, Applications, and Management Implications

Alba Bruno and Tamara Menichini
University of Rome "Niccolò Cusano", Rome, Italy

alba.bruno@unicusano.it
tamara.menichini@unicusano.it

Abstract: Accurate investment evaluation requires looking well beyond the purchase price. As sustainability regulations tighten globally and stakeholder accountability pressures intensify, decision-makers need analytical tools capable of capturing the full economic picture of a product or service across its entire useful life. Life Cycle Cost (LCC) analysis provides precisely such a framework, enabling the systematic forecasting and evaluation of costs across all life cycle phases while explicitly accounting for future uncertainties. Rooted in the Life Cycle Thinking paradigm, LCC is conceptually complementary to Life Cycle Assessment (LCA), which focuses on environmental impacts, and Social Life Cycle Assessment (S-LCA), which addresses social dimension. Regulatory bodies, particularly within the European Union, have formally incorporated LCC into public procurement frameworks, enabling or, in specific sectoral contexts, mandating its adoption as an award criterion, thus accelerating its institutional diffusion. This regulatory momentum reflects a broader recognition that short-term cost comparisons are inadequate proxies for the true economic burden of long-lived assets and infrastructure investments, where operational, maintenance, and end-of-life costs frequently overshadow initial acquisition expenditures. Despite this growing recognition, LCC adoption remains characterized by significant methodological heterogeneity. Divergent cultural approaches to cost analysis, varying computational methods, inconsistent assumptions on discount rates and uncertainty treatment, and sector-specific adaptations have generated a fragmented landscape that complicates cross-sector comparability and benchmarking. This fragmentation risks undermining the reliability of LCC-based decisions when managers lack sufficient awareness of how methodological choices shape cost outcomes and, consequently, investment rankings. To address this critical gap, the present article provides a structured comparative analysis of LCC adoption across multiple industrial sectors, bridging the distance between the tool's considerable theoretical potential and its often-inconsistent practice. Such an investigation is an increasingly urgent priority: as sustainability obligations continue to reshape managerial decision-making worldwide, organizations that lack robust and methodologically sound cost assessment tools risk both competitive disadvantages and regulatory non-compliance. Understanding LCC approaches, their underlying assumptions, and their practical implications is therefore not merely an academic exercise, but a strategic imperative for practitioners operating in an era of tightening social environmental and economic accountability.

Keywords: Life cycle cost analysis, Life cycle thinking, Strategic decision-making, Sustainability decisions, Investment cost analysis

1. Introduction/Background

Over the past few decades, firms have operated in increasingly dynamic and competitive environments, characterised by rapid technological development, evolving market conditions, and growing pressure to improve the efficiency and sustainability of business activities. In this context, assessing sustainability performance has become increasingly important to support informed decision-making and the development of more sustainable business models (Goffetti *et al.*, 2022). Companies are thus required to adopt a more comprehensive approach to evaluating their activities, considering the interrelated environmental, social, and economic dimensions of sustainability (Kloepffer, 2008). In particular, sustainability assessment increasingly relies on methodologies that evaluate the impacts of products, services and processes throughout their entire life cycle (Sala *et al.*, 2013). Life Cycle Thinking provides the conceptual basis for these methodologies, including Life Cycle Assessment (LCA) for environmental impacts, Life Cycle Costing (LCC) for economic impacts, and Social Life Cycle Assessment (S-LCA) for social impacts. Their integration into Life Cycle Sustainability Assessment (LCSA) enables a more comprehensive evaluation of sustainability across all three dimensions (Bruno, Menichini and Silvestri, 2025). These life cycle-based methods have also demonstrated their value in supporting decision-making processes, both at the organisational level and in the development of public policies (Sonnemann *et al.*, 2017). From an economic sustainability perspective, firms and managers are increasingly required to look beyond initial investment and short-term returns, considering costs over the entire life cycle, including maintenance, operation, and end-of-life costs (Eldars and Sorour, 2026). This shift requires tools capable of providing decision-makers with comprehensive information to support economic evaluation throughout the life cycle (Sani *et al.*, 2026). Life Cycle Costing (LCC) addresses this need by extending the Life Cycle Thinking approach to the economic dimension and enabling the assessment of the costs associated with a product or service throughout its entire life cycle (Ashby, 2024). Although LCC is

increasingly applied and has gained sufficient relevance to be incorporated into regulatory frameworks and formal standards, substantial heterogeneity remains in the methods used, partly due to differences in geographical and industrial contexts (Bachmann *et al.*, 2024). Moreover, inconsistencies in its implementation and limitations in data quality introduce further uncertainty into LCC applications, highlighting the need for further research and methodological insights (Ilg *et al.*, 2017). Against this background, this study aims to analyse the methodologies through which LCC can be applied, providing a structured basis for understanding and correctly implementing the method, while highlighting its potential to support managers and decision-makers in the pursuit of economic sustainability.

2. Method

The first part of this study focused on presenting the development of the Life Cycle Costing (LCC) method and its widespread adoption also regarding regulatory aspects and the impact of these regulations on the further evolution of the LCC approach. A literature search was conducted in the Scopus database, selecting publications from 2016 onward. From this initial search, reviews were selected in which the articles covered LCC offering detailed explanations of the LCC method and its application, with the aim to reveal the most recent methodological approaches for implementing LCC. The authors subsequently conducted a comparative analysis of current developments in the adoption of the LCC methodology in scientific literature and managerial practice. To carry out this analysis, reviews published in the last eight years were identified in the Scopus database, where each review was conducted by authors of the same nationality and focused on articles concerning LCC. By analysing these reviews, various approaches and recurring themes in LCC were identified, depending on the geographic origin of the review authors. The results of this comparison were compiled and presented in a table. Finally, the anticipated future developments regarding the adoption of LCC were presented.

3. The Role of LCC in Governance and Management

Life Cycle Costing has been developing and spreading since the middle of the last century, primarily within military and governmental contexts. Referring to that period, Woodward (1997) describes LCC as a process employed to maximize the use of economic resources in the procurement of goods, while simultaneously accounting for all costs (purchase, maintenance, and disposal) incurred throughout the product's entire life cycle. A first distinction from traditional financial accounting thus emerges, as the latter is primarily concerned with the depreciation of an initial investment (Liapis and Kantianis, 2015). Towards the end of the century, LCC also became widespread in the civil engineering and infrastructure sectors. Although the method’s usefulness and benefits were broadly recognized, Cole and Sterner (2000) identified, as early as 2000, several operational challenges associated with its application, primarily stemming from difficulties in obtaining reliable data.

Despite these limitations, LCC has progressively gained traction, partly owing to the growing emphasis on sustainability, particularly in its environmental and economic dimensions. As this emphasis intensified, methodologies capable of quantifying environmental impacts (Life Cycle Assessment) and economic impacts (Life Cycle Costing) achieved greater acceptance and development across industries, extending beyond purely business-oriented contexts. Indeed, since the late 1990s, LCC has been adopted by the Swedish Armed Forces. Hochschorner and Finnveden (2006) monitored the first decade of its application, demonstrating the method's effectiveness despite an initial methodological fragmentation across different areas of military procurement.

A further significant step in the adoption of LCC within industrial contexts was the introduction of guidelines on economic sustainability within official regulatory frameworks. A notable example is Directive 2014/24/EU, which shifted the focus of procurement management from the initial purchase cost to the total cost incurred over the product's entire useful life cycle (European Parliament and Council Directive of 26 February 2014 on public procurement and repealing Directive 2004/18/EC, 2014). This legislation also began to address environmental costs, that is, costs potentially impacting the environment, thereby marking a transition from an approach based on the lowest initial purchase price to one based on the most economically advantageous offer, and illustrating the increasing attention devoted to LCC within EU law, policy, and practice (Czarnezki and Van Garsse, 2019).

Nonetheless, the implementation of LCC has varied considerably across institutional and geographical contexts. Whereas Directive 2014/24/EU mandates, within the EU, that companies participating in public procurement tenders evaluate the total cost of the goods or services covered by the contract through LCC calculations, the situation in the United States differs substantially. In the U.S. the use of LCC is not mandatory for companies but for federal Entities. The law 42 USC § 8254 establishes the Life Cycle Cost methods and

procedures used by the U.S. Federal Government to evaluate energy systems, water systems, and building designs (United States Code, 2024). It requires government agencies to use a consistent economic approach to ensure long-term energy efficiency and cost-effectiveness in federal construction. In addition, law 42 USC § 8259 requires federal buyers to procure energy-efficient products and to consider Life Cycle Costs, specifically mandating the selection of the lowest LCC option (United States Code, 2024). Both the laws remand to the NIST handbook (CIT) which contains the guidelines for the LCC application in those field (Kneifel, 2025).

Currently, the LCC approach is therefore widely adopted, although it continues to exhibit notable methodological heterogeneity across contexts.

4. LCC Methods: An Overview

4.1 Main Methods for Applying LCC

To clearly illustrate the LCC methodology, it is useful to outline its main application strategies, as LCC can be performed according to different criteria depending on the characteristics of the study at hand. Five main categories of methods can be identified: the Deterministic method, which discounts future costs to a reference year; the Reliability method, which addresses corrective maintenance costs and component failure behaviour; the Uncertainty and Risk Management method, which focuses on potential future contingencies; the Probabilistic/Stochastic method, which models input parameters as random variables to capture the variability of results; and the Fuzzy Set method, which represents uncertainty through membership functions when historical data are scarce. The main characteristics of each methodology are summarized in Table 1.

Table 1: Comparison of LCC Methods

Method	Aim	Strengths	Weaknesses
Deterministic method (Gulotta et al., 2022a; Zhao and Li, 2022)	Discounts projected future costs back to a reference year using a fixed discount rate to compute the Net Present Value (NPV).	Conceptually simple and computationally transparent, making it an effective decision-support tool, particularly for comparing alternative scenarios.	Because input parameters (discount rate, prices, costs) are treated as fixed, results become increasingly unreliable over long-term horizons (20–30 years), where exogenous factors such as inflation, interest-rate shifts, and energy price volatility can substantially alter actual outcomes.
Reliability method (Babashamsi et al., 2016; Farsi et al., 2023)	Estimates corrective maintenance costs using reliability-based indicators, primarily Mean Time To Failure (MTTF) and component failure rate.	High predictive accuracy, as estimates are grounded in empirical, component-specific performance data rather than generic assumptions.	Its applicability is constrained by data availability: it cannot be implemented in organizations lacking a structured historical maintenance database or sufficient cross-departmental information sharing.
Uncertainty and risk management method (Ilg et al., 2017; Scope et al., 2016)	Introduces a dedicated contingency cost item within the LCC estimate to account for unforeseen events (e.g., equipment failure, supplier price increases).	Reduces exposure to budget overruns by proactively allocating resources for unplanned expenses.	Contingency allocations are often based on subjective expert judgment or estimated probabilities of occurrence, introducing variability that limits the objectivity and reproducibility of the analysis.
Probabilistic / stochastic method (Monte Carlo simulation) (De Melo et al. 2025; Wang, Chang and El-Sheikh., 2012)	Treats key input parameters (discount rate, energy prices, maintenance costs, etc.) as random variables with assigned probability distributions and runs repeated simulations to generate a distribution of possible LCC outcomes rather than a single point estimate.	Provides a quantitative measure of result variability and confidence intervals, overcoming the rigidity of the deterministic approach and offering a more realistic picture of long-term cost uncertainty.	Requires reliable probability distributions for each input variable, which are often difficult to obtain; it is also computationally more demanding and can be harder to communicate to non-technical decision-makers than a single deterministic value.

Method	Aim	Strengths	Weaknesses
Fuzzy set method (Zhang, Yuan and Teng, 2025)	Models' uncertainty in cost parameters using fuzzy numbers and membership functions instead of crisp values or probability distributions, particularly useful when historical or statistical data are scarce.	Allows uncertainty to be represented even in data-poor contexts, capturing expert judgment and linguistic imprecision (e.g., "low," "medium," "high" cost) in a structured mathematical form.	Results depend heavily on the membership functions defined by experts, which can introduce subjectivity; the method is also less widely standardized and less intuitive for practitioners compared to probabilistic approaches.

4.2 Geographic Influence on the Area of Interest of the LCC Method

Finally, when studying the evolution of LCC methods, attention must be paid to cultural influences that may be linked to the type of approach taken to LCC. In fact, by analysing several reviews of studies conducted in different parts of the world emerges that, depending on the authors' affiliation region, different areas of analysis are prioritized. Below is a summary table of the main characteristics of certain geographic regions of the world. In particular, it is evident that in Europe, likely due to European Directives such as Directive 2014/24/EU, LCC, like LCA, is primarily applied in connection with environmental studies (Sala *et al.*, 2021). At the same time, in the U.S., the focus is on both economic and environmental aspects, but with a preference for applications to industrial processes and large-scale infrastructure, whereas in Europe, the sectors analyzed in the reviews are transportation, buildings, and agriculture. Finally, in the United Kingdom and Canada, reviews tend to focus on the construction sector, using LCC with reliability calculations.

Table 2: Comparison of LCC Application Approaches by Authors' Geographic Affiliation

Geographic area	LCC model	Aim	Sector specific application
U.S.A. **(Kaushal, Najafi and Serajiantehrani, 2020), (Luo et al., 2021)**	LCC and LCC+LCA (Life Cycle Costing)	Capital efficiency and the pursuit of maximum direct savings.	Minimizing Initial Costs in Large-Scale Infrastructure and industrial processes
Europe **(Gulotta et al., 2022b), (Mondello et al., 2023), (De Menna et al., 2018)**	E-LCC (Environmental Life Cycle Costing) and LCC+LCA (Life Cycle Costing)	Prioritize choices that are more cost-effective and more sustainable	Long-term sustainability through the inclusion of environmental impact costs (CO_2). Focus mainly on transport, building and agriculture.
United Kingdom, Canada **(Alasmari, Martinez-Vazquez and Baniotopoulos, 2022), (Jrade et al., 2023)**	LCC with reliability computation	Better Forecast Maintenance Costs	Precisely addressing the real Estate assets costs.

5. Managerial Implications

LCC has a wide range of applications in both the private and public sectors. For a private company, LCC could be useful for an internal review of the costs of its production lines and business units, and thus for optimizing production processes (Lindgreen *et al.*, 2026). Furthermore, companies are required to submit an LCC study to participate in public tenders within the European Union, according to EU 2014 Directive (European Parliament and Council Directive of 26 February 2014 on public procurement and repealing Directive 2004/18/EC, 2014). LCC, as is already the case in the U.S., can also be used by public entities themselves to determine their investment priorities within their jurisdictions (United States Code, 2024). From the perspective of management and decision-making, LCC therefore offers significant potential, to help promote Life Cycle Management, to facilitate the transition to a circular economy, and to support an effective marketing strategy. An important approach that has developed in recent decades is Life Cycle Management (LCM), a management approach adaptable to all types of companies or organizations, aimed at improving sustainability performance (Life Cycle Management - Life Cycle Initiative). This method, which can offer various practical benefits for the company in question, can draw inspiration and input from LCC, as reported by Kambanou (2020). However, the use of LCC to implement LCM must be managed rigorously to avoid excessively divergent applications of LCC methods among different users working on the same project, and to ensure that environmental objectives are not compromised by mitigating or excluding the relevant impacts (Kambanou, 2020).

LCC may also prove useful for the circular economy sector (Albuquerque *et al.*, 2019). Since the adoption of circular economy measures can be difficult for companies to adopt, LCC can provide information on current economic conditions and potential future financial implications, as well as, to some extent, on the circular recovery of resources, thereby stimulating the transition of industries or companies toward circularity (Kambanou and Sakao, 2020).

Finally, in recent years, some companies have begun to incorporate tools into their marketing strategies that are provided directly to users, allowing buyers to gain early access to estimates of potential future product maintenance costs. These tools are being implemented by a variety of companies in different sectors from automotive (IVECO COST CALCULATOR-Iveco Group)~~)~~ to Heating Ventilation and Air Conditioning (HVAC) systems (*Binnenklimaat Nederland)*, linear and rotary actuators (*Life Cycle Cost Ownership Interactive Calculator | FIRGELLI),* measuring tools *(Lifecycle Cost (LCC) | Total Cost of Ownership — Vibromera)*. LCC itself could be incorporated into marketing strategies to improve stakeholder trust in companies (Lindgreen *et al.*, 2026). Even in the public sector, tools for calculating TCO and LCC are beginning to become available, such as those from the European Union (Life-cycle costing Calculation Tools (DG ENV) | Public Buyers Community) or the International Council on Transport (Total Cost of Ownership (TCO) Calculator - International Council on Clean Transportation).

6. Future Developments

Despite its increasing use, LCC still faces technical challenges in its application. A major issue concerns uncertainty: De Melo et al. (2025) propose combining LCC with Monte Carlo simulation and real options, offering a more tractable alternative to analytical methods for mitigating uncertainty. Future developments may also involve integrating LCC with AI, although this remains at an early stage; examples include the use of Natural Language Processing (NLP) to support data extraction from technical specifications and contracts, and AI-based methods aimed at streamlining the LCC calculation process itself (Avogaro et al., 2025).

Further adoption of the method, including its direct use by end-users, also warrants closer assessment. Moreover, while LCC–LCA integration is already well established, growing attention is being directed toward also incorporating social impacts (S-LCA), with the aim of providing stakeholders and decision-makers with increasingly comprehensive and accessible tools for informed sustainability decision-making (Fauzi et al., 2019; Finkbeiner et al., 2010; Sala et al., 2013).

7. Conclusions

Over the years, LCC has evolved to take an increasing number of factors into account and to integrate with other tools, allowing it to be applied to an ever-wider range of fields. The variety of LCC calculation methods, which vary depending on the industry sector, region of the world, and the study's objectives, is matched by a variety of different entities that benefit from performing LCC calculations, as it is a method applicable to both public agencies and private companies (Goffetti et al., 2022; Sonnemann et al., 2017). From the perspective of management and decision-making, LCC offers significant potential, but experts in these fields must stay up to date and learn to properly understand and interpret the results of these studies (Bachmann et al., 2024). Furthermore, it is important that those involved in LCC strive to standardize methodologies and find ways to reduce the uncertainty of the results (Ilg et al., 2017). Future approaches to making LCC more robust include reducing uncertainty through probabilistic techniques such as Monte Carlo simulation, which has already proven effective in quantifying risk and variability in life cycle cost models for building and infrastructure projects (Wang, Chang and El-Sheikh., 2012), as well as integrating traditional LCC with artificial intelligence and machine learning systems, which can automate data collection, improve cost forecasting, and support real-time decision-making throughout the assessment process (Ghoroghi et al., 2022). It will also be important to integrate LCC with LCA and S-LCA (Bruno, Menichini and Silvestri, 2025): a combined Life Cycle Sustainability Assessment (LCSA) approach allows decision-makers to evaluate the economic, environmental, and social dimensions of a product or system simultaneously, rather than in isolation, thereby avoiding trade-offs that might otherwise go unnoticed when only one dimension is assessed. The integrated perspective makes it possible to identify solutions that are not only cost-effective but also environmentally sound and socially responsible, strengthening the overall robustness and credibility of sustainability claims. By addressing these methodological challenges and embracing greater integration with LCA and S-LCA, organizations can transform LCC from a narrow accounting exercise into a strategic tool that supports both competitive positioning and long-term sustainability goals.

Ethics Declaration: Ethical clearance was not required for this research.

AI Declaration: AI-assisted tools were used solely for language editing. The authors remain fully responsible for the content, interpretation of the results, and conclusions presented in the paper.

References

Alasmari, E., Martinez-Vazquez, P. and Baniotopoulos, C. (2022) "A Systematic Literature Review of the Adoption of Building Information Modelling (BIM) on Life Cycle Cost (LCC)," *Buildings 2022, Vol. 12, Page 1829*, 12(11), p. 1829. Available at: https://doi.org/10.3390/BUILDINGS12111829.

Albuquerque, T.L.M. *et al.* (2019) "Life cycle costing and externalities to analyze circular economy strategy: Comparison between aluminum packaging and tinplate," *Journal of Cleaner Production*, 234, pp. 477–486. Available at: https://doi.org/10.1016/J.JCLEPRO.2019.06.091.

Ashby, M.F. (2024) "Life Cycle Costing, LCC," *Materials and Sustainable Development*, pp. 149–181. Available at: https://doi.org/10.1016/B978-0-323-98361-7.00007-5.

Avogaro, D. *et al.* (2025) "Mapping Cost Intersection Through LCC, BIM, and AI: A Systematic Literature Review for Future Opportunities." Available at: https://doi.org/10.3390/buildings15183345.

Babashamsi, P. *et al.* (2016) "Evaluation of pavement life cycle cost analysis: Review and analysis," *International Journal of Pavement Research and Technology*, 9(4), pp. 241–254. Available at: https://doi.org/10.1016/J.IJPRT.2016.08.004.

Bachmann, T.M. *et al.* (2024) "Life cycle costing as part of a life cycle sustainability assessment of products: methodology and case studies," *The International Journal of Life Cycle Assessment 2024 29:10*, 29(10), pp. 1863–1879. Available at: https://doi.org/10.1007/S11367-024-02347-1.

Binnenklimaat Nederland. Available at: https://www.vlalcc.nl/ (Accessed: June 26, 2026)

Bruno, A., Menichini, T. and Silvestri, L. (2025) "Life Cycle Sustainability Assessment (LCSA): A comprehensive overview of existing integrated approaches to LCA, S-LCA, and LCC," *European Journal of Sustainable Development*, 14(3), pp. 13–13. Available at: https://doi.org/10.14207/EJSD.2025.V14N3P13.

Cole, R.J. and Sterner, E. (2000) "Reconciling theory and practice of life-cycle costing," *Building Research & Information*, 28(5–6), pp. 368–375. Available at: https://doi.org/10.1080/096132100418519.

Czarnezki, J.J. and Van Garsse, S. (2019) "What is Life-Cycle Costing?," *Cost and EU public procurement law: life-cycle costing for sustainability* [Preprint]. Routledge Press. Available at: https://papers.ssrn.com/abstract=3789958 (Accessed: June 24, 2026).

De Melo, G.A. *et al.* (2025) "Optimizing forest sector performance based on life cycle cost analysis and real options," *Science of The Total Environment*, 988, p. 179675. Available at: https://doi.org/10.1016/J.SCITOTENV.2025.179675.

De Menna, F. *et al.* (2018) "Life cycle costing of food waste: A review of methodological approaches," *Waste Management*, 73, pp. 1–13. Available at: https://doi.org/10.1016/j.wasman.2017.12.032.

Eldars, E.A. and Sorour, A.A. (2026) "Life cycle cost reliability assessment for strategic real estate decision-making," *Expert Systems with Applications*, 298, p. 129329. Available at: https://doi.org/10.1016/J.ESWA.2025.129329.

European Parliament and Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC (2014) "DIRECTIVE 2014/24/EU," *Public procurement of European Parliament and Council*. Available at: https://eur-lex.europa.eu/eli/dir/2014/24/oj/eng (Accessed: June 24, 2026).

Farsi, M. *et al.* (2023) "A Robust Design for Lifecycle Cost with Reliability Analysis Integration," *Procedia CIRP*, 119, pp. 248–253. Available at: https://doi.org/10.1016/J.PROCIR.2023.05.004.

Fauzi, R.T. *et al.* (2019) "Exploring the Current Challenges and Opportunities of Life Cycle Sustainability Assessment," *Sustainability 2019, Vol. 11, Page 636*, 11(3), p. 636. Available at: https://doi.org/10.3390/SU11030636.

Finkbeiner, M. *et al.* (2010) "Towards Life Cycle Sustainability Assessment," *Sustainability 2010, Vol. 2, Pages 3309-3322*, 2(10), pp. 3309–3322. Available at: https://doi.org/10.3390/SU2103309.

Ghoroghi, A. *et al.* (2022) "Advances in application of machine learning to life cycle assessment: a literature review," *The International Journal of Life Cycle Assessment 2022 27:3*, 27(3), pp. 433–456. Available at: https://doi.org/10.1007/S11367-022-02030-3.

Goffetti, G. *et al.* (2022) "Towards sustainable business models with a novel life cycle assessment method," *Business Strategy and the Environment*, 31(5), pp. 2019–2035. Available at: https://doi.org/10.1002/BSE.3005.

Gulotta, T.M. *et al.* (2022a) "Life Cycle Assessment and Life Cycle Costing of unitized regenerative fuel cell: A systematic review," *Environmental Impact Assessment Review*, 92, p. 106698. Available at: https://doi.org/10.1016/J.EIAR.2021.106698.

Gulotta, T.M. *et al.* (2022b) "Life Cycle Assessment and Life Cycle Costing of unitized regenerative fuel cell: A systematic review," *Environmental Impact Assessment Review*, 92, p. 106698. Available at: https://doi.org/10.1016/J.EIAR.2021.106698.

Hochschorner, E. and Finnveden, G. (2006) "Life cycle approach in the procurement process: The case of defence materiel," *International Journal of Life Cycle Assessment*, 11(3), pp. 200–208. Available at: https://doi.org/10.1065/lca2005.10.230.

Ilg, P. *et al.* (2017) "Uncertainty in life cycle costing for long-range infrastructure. Part I: leveling the playing field to address uncertainties," *International Journal of Life Cycle Assessment*. Springer Verlag, pp. 277–292. Available at: https://doi.org/10.1007/s11367-016-1154-1.

IVECO COST CALCULATOR-Iveco Group (no date). Available at: https://tco.iveco.com/my2024/calculator.html?country=uk&lang=en (Accessed: June 25, 2026).

Jrade, A. *et al.* (2023) "Potential Integration of Bridge Information Modeling and Life Cycle Assessment/Life Cycle Costing Tools for Infrastructure Projects within Construction 4.0: A Review," *Sustainability (Switzerland)*, 15(20), p. 15049. Available at: https://doi.org/10.3390/SU152015049/S1.

Kambanou, M.L. (2020) "Life Cycle Costing: Understanding How It Is Practised and Its Relationship to Life Cycle Management—A Case Study," *Sustainability 2020, Vol. 12, Page 3252*, 12(8), p. 3252. Available at: https://doi.org/10.3390/SU12083252.

Kambanou, M.L. and Sakao, T. (2020) "Using life cycle costing (LCC) to select circular measures: A discussion and practical approach," *Resources, Conservation and Recycling*, 155, p. 104650. Available at: https://doi.org/10.1016/J.RESCONREC.2019.104650.

Kaushal, V., Najafi, M. and Serajiantehrani, R. (2020) "Environmental Impacts of Conventional Open-Cut Pipeline Installation and Trenchless Technology Methods: State-of-the-Art Review," *Journal of Pipeline Systems Engineering and Practice*, 11(2). Available at: https://doi.org/10.1061/(ASCE)PS.1949-1204.0000459.

Kneifel, J. (2025) *Life Cycle Costing Manual for the Federal Energy Management Program*. Available at: https://doi.org/10.6028/NIST.HB.135e2025

Kloepffer, W. (2008) "Life cycle sustainability assessment of products", *Int J Life Cycle Assess* 13, 89–95. Available at: https://doi.org/10.1065/lca2008.02.376

Liapis, K.J. and Kantianis, D.D. (2015) "Depreciation Methods and Life-cycle Costing (LCC) Methodology," *Procedia Economics and Finance*, 19, pp. 314–324. Available at: https://doi.org/10.1016/S2212-5671(15)00032-5.

Life Cycle Cost Ownership Interactive Calculator | FIRGELLI. Available at: https://www.firgelliauto.com/blogs/calculators/life-cycle-cost-ownership-calculator?srsltid=AfmBOort7HQf2pIPmToKOxmp91umU_DuwjIrADzqJxzgPsS52Xv509aX (Accessed: June 26, 2026).

Life Cycle Management - Life Cycle Initiative (no date). Available at: https://www.lifecycleinitiative.org/starting-life-cycle-thinking/life-cycle-approaches/life-cycle-management/ (Accessed: June 25, 2026).

Lifecycle Cost (LCC) | Total Cost of Ownership — Vibromera (no date). Available at: https://vibromera.eu/calculators/lifecycle-cost-calculator/?acq=5000&inst=1000&energy=500&maint=300&life=15&rate=5&cur=EUR (Accessed: June 26, 2026).

Life-cycle costing Calculation Tools (DG ENV) | Public Buyers Community (no date). Available at: https://public-buyers-community.ec.europa.eu/resources/life-cycle-costing-calculation-tools-dg-env (Accessed: June 30, 2026).

Lindgreen, Adam. *et al.* (2026) "The Sage Handbook of Industrial Marketing." Available at: https://books.google.com/books/about/The_Sage_Handbook_of_Industrial_Marketin.html?hl=it&id=a8quEQAAQBAJ

Luo, J. *et al.* (2021) "Review of Advances in Engineering Nanomaterial Adsorbents for Metal Removal and Recovery from Water: Synthesis and Microstructure Impacts," *ACS ES and T Engineering*, 1(4), pp. 623–661. Available at: https://doi.org/10.1021/acsestengg.0c00174.

Mondello, G. *et al.* (2023) "Life Cycle Assessment and Life Cycle Costing for assessing maritime transport: a comprehensive literature review," *Maritime Policy and Management*, 50(2), pp. 198–218. Available at: https://doi.org/10.1080/03088839.2021.1972486.

Sala, S. *et al.* (2021) "The evolution of life cycle assessment in European policies over three decades," *The International Journal of Life Cycle Assessment 2021 26:12*, 26(12), pp. 2295–2314. Available at: https://doi.org/10.1007/S11367-021-01893-2.

Sala, Serenella *et al.* (2013) "Life cycle sustainability assessment in the context of sustainability science progress (part 2)," *Int J Life Cycle Assess*, 18, pp. 1686–1697. Available at: https://doi.org/10.1007/s11367-012-0509-5.

Sani, A.A. *et al.* (2026) "A critical and bibliometric review of life cycle cost analysis integration into decision support systems for pipeline asset integrity management," *Journal of Pipeline Science and Engineering*, 6(1), p. 100307. Available at: https://doi.org/10.1016/J.JPSE.2025.100307.

Sonnemann, G. *et al.* (2017) "Life cycle thinking and the use of LCA in policies around the world," *Life Cycle Assessment: Theory and Practice*, pp. 429–463. Available at: https://doi.org/10.1007/978-3-319-56475-3_18.

Scope, C. *et al.* (2016) "Uncertainty in life cycle costing for long-range infrastructure. Part II: guidance and suitability of applied methods to address uncertainty," *International Journal of Life Cycle Assessment*. Springer Verlag, pp. 1170–1184. Available at: https://doi.org/10.1007/s11367-016-1086-9.

Total Cost of Ownership (TCO) Calculator - International Council on Clean Transportation. Available at: https://theicct.org/tco-calculator/#/?vehicle_class=89953&region=89964&charger_type=89950&charger_cost=40000&number_of_chargers=1&charger_maintenance=1000&infrastructure_useful_life=15&vehicle_purchase_price=65000&fuel_economy=15&maintenance_cost=0.14&bev_purchase_price=80000&battery_capacity=100&electric_efficiency=1&battery_replacement_cost=20000&battery_warranty_period=8&bev_maintenance_cost=0.08&federal_excise_tax_diesel=0&federal_excise_tax_bev=0&sales_tax=7.5&diesel_price=4.5&diesel_price_escalation=2.5&charging_type=private&private_electricity_escalation=1.5&public_electricity_escalation=2&public_electricity_monthly_fee=0&private_electricity_rate=0.13&public_charging_rate=0.45&statelocal_incentives_bev=0&infrastructure_tax_credit=30&discount_rate=3.5&payment_method=89954&residual_value_diesel=25&residual_value_bev=20&driver_labor_cost=30&charging_time_per_cycle=2&insurance_premium_difference_bev=25&gvwr_diesel=80000&gvwr_bev=82000&curb_weight_diesel_tr

actor=15000&curb_weight_bev_tractor=20000&empty_trailer_weight=12500&actual_average_payload=12500&analysis_period=5&annual_mileage=100000 (Accessed: June 30, 2026).

United States Code, 2024 Edition, Title 42 (2024) *42 U.S.C. 8259 - United States Code, 2024 Edition, Title 42*, *govinfo.gov*. U.S. Government Publishing Office. Available at: https://www.govinfo.gov/app/details/USCODE-2024-title42/USCODE-2024-title42-chap91-subchapIII-partB-sec8259 (Accessed: June 26, 2026).

United States Code, 2024 Edition, Title 42 (2024) *42 U.S.C. 8254 - United States Code, 2024 Edition, Title 42*, *govinfo.gov*. U.S. Government Publishing Office. Available at: https://www.govinfo.gov/app/details/USCODE-2024-title42/USCODE-2024-title42-chap91-subchapIII-partB-sec8254 (Accessed: June 26, 2026).

Wang, N., Chang, Y.C. and El-Sheikh, A.A. (2012) "Monte Carlo simulation approach to life cycle cost management," *Structure and Infrastructure Engineering*, 8(8), pp. 739–746. Available at: https://doi.org/10.1080/15732479.2010.481304.

Woodward, D.G. (1997) "Life cycle costing—Theory, information acquisition and application," *International Journal of Project Management*, 15(6), pp. 335–344. Available at: https://doi.org/10.1016/S0263-7863(96)00089-0.

Zhang, W., Yuan, T. and Teng, Y. (2025) "Life cycle cost assessment of PEM water electrolysis systems: a system dynamics–intuitionistic fuzzy bayesian network approach," *Energy Conversion and Management: X*, 28, p. 101237. Available at: https://doi.org/10.1016/J.ECMX.2025.101237.

Zhao, J. and Li, S. (2022) "Life cycle cost assessment and multi-criteria decision analysis of environment-friendly building insulation materials - A review," *Energy and Buildings*, 254, p. 111582. Available at: https://doi.org/10.1016/J.ENBUILD.2021.111582.

Implementation of Strategic Metrics and Action Plans: A Finnish Case Study on Practical Execution

Kristiina Brusila-Meltovaara and Olli Vartiala
LAB University of Applied Science, Finland

kristiina.brusila-meltovaara@lab.fi
olli.vartiala@raspal.fi

Abstract: This study examines how a strategic action plan and performance measurement system can be developed and implemented in practice within a Finnish industrial SME. The study is based on a qualitative case study of a strategy renewal and performance measurement process conducted during 2024–2026. The empirical material consists of internal strategy documents, performance measurement materials, action-planning documents, meeting discussions and observations from the development process. In the case organisation, a strategy defining the organisation's long-term goals was formulated, followed by the development of a performance measurement system to translate these goals into measurable indicators. The system enables systematic monitoring of strategy implementation, identification of deviations and timely corrective actions. The action plan defined responsibilities, schedules and required resources, ensuring alignment between strategic objectives and daily operations. The findings highlight the importance of clarifying the purpose of measurement, standardising concepts, assigning ownership of indicators, piloting reporting practices and using feedback to refine the system. The study contributes to the discussion on strategy implementation and governance by illustrating how performance measurement systems and action planning support strategic alignment, accountability and managerial follow-up in a real-life environment. It also addresses the ECMLG themes of strategic management and governance by examining how strategic objectives are translated into measurable performance indicators and concrete operational actions. As a single-case study, the findings are context-specific and should not be interpreted as statistically generalisable; however, they provide practical insight into how to strengthen strategy execution through structured performance measurement and action planning.

Keywords: Strategic management, Action planning, Organizational performance, Performance measurement, Strategy implementation

1. Introduction

Organisations are faced with increasingly complex and rapidly changing environments where formulated strategies alone are not in themselves adequate to ensure desired outcomes. One of the difficulties organisations and strategy research face is the difficulty of translating strategy into actionable and organised operational activities. (Kaplan & Norton, 2002; Hrebiniak, 2006). The strategy-execution mismatch is associated with how organisations design and utilise performance measurement systems. Performance measurement systems have been conceptualized as strategic tools that guide where the organisations pay attention to, enable alignment, and also support organisational learning. (Bourne et al., 2003; Franco-Santos et al., 2012; Striteska & Spickova, 2012).

Performance measurement systems act as mechanisms through which strategy is implemented in everyday organisational practices. Rather than serving as passive repositories of information, measurement systems shape managerial behaviour by directing attention, structuring decision-making, and supporting strategic alignment across organisational levels. Performance measurement system design bridges strategy formulation and the use of performance information, suggesting that strategic impact depends on how deeply metrics are embedded in organisational routines and managerial processes (Johnsen et al., 2024). Furthermore, strategically aligned measurement systems contribute to stronger organisational outcomes. Organisations whose key performance indicators are directly derived from strategic objectives outperform those relying on fragmented or operationally disconnected metrics (Mtau & Rahul, 2024). Performance measurement functions not only as a control mechanism but also as a capability that translates strategic intent into coordinated action.

Measurement also drives organisational learning and adaptation. What organisations choose to measure shapes what they prioritise, experiment with, and ultimately value (Schrage et al., 2024). Consequently, performance measurement should be understood not merely as a technical process but as a strategic activity that influences how organisations interpret and respond to their environments. Although previous research has widely examined the design and strategic role of performance measurement systems, less emphasis has been placed on their practical implementation together with action planning as part of strategy execution in SMEs. This study addresses this gap by examining how performance measurement and action planning support the practical implementation of strategy. The research question is: How can performance measurement and action planning support the practical implementation of strategy in practice?

2. Literature Review

Strategy defines the long-term direction and objectives of an organisation, but its successful implementation requires mechanisms that translate strategic intent into operational activities. Performance measurement systems support this translation by aligning indicators with strategic choices and by guiding how strategy is converted into operational activities (Tonchia, 2000). Key performance indicators (KPIs) play an integral role in this process, as they translate strategic objectives into measurable activities and thus enable strategy implementation (Hristov et al., 2022). Thus, the alignment of operational activities with competitive strategies enhances organisational performance (Sahoo, 2021).

Previous research has shown that performance measurement can mediate between competitive strategy and organisational performance (Jusoh & Parnell, 2008; Van der Stede et al., 2006; Teeratansirikool et al., 2013). Competitive strategy influences organisational behaviour and performance partly through the way in which performance measurement practices are designed and used, demonstrating that measurement is not merely a monitoring tool but also an implementation mechanism (Zairbani & Prakash, 2025).

Performance indicators represent a broader set of measures used to assess organisational performance, whereas key performance indicators refer to strategically selected metrics directly connected to critical organisational objectives (Hristov et al., 2022). KPIs can support strategy execution by enabling organisations to monitor progress, identify changes and respond to disruptions. For managers, this means that KPIs should not only be used to track efficiency but also to support learning, coordination and proactive decision-making (Werner et al., 2021). However, their strategic value depends on how they are understood, interpreted and used within organisational practices and culture (Gago-Rodriguez & Vikson, 2023). From this perspective, performance measurement systems can be viewed as broader organisational capabilities that support coordinated action, resilience and adaptation in complex operating environments.

Performance indicators and KPIs provide a way to translate strategy into measurable strategic goals; however, their impact on organisational performance depends on their practical implementation (Bourne et al., 2003). Performance indicators fail to affect organisational outcomes if they are not connected to everyday managerial decision-making and operational activities. For KPIs to be effective, they should form an intrinsic part of managerial practices and be linked to concrete operational actions (Barros et al., 2026). The implementation of performance measurement systems (PMS) is therefore a complex organisational process that includes the selection of indicators to ensure strategic alignment and managerial relevance. Effective implementation requires translating strategic objectives into coherent measures that are understood, accepted and used throughout the organisation (Chopra et al., 2017). Performance measurement frameworks, such as the Balanced Scorecard, support this process by enabling organisations to convert their vision and mission into objectives and performance measures through indicators, standards, reward systems and strong leadership support (Abdullah & Yusof, 2013).

Taken together, the literature suggests that performance measurement systems support strategy implementation when strategic objectives are translated into meaningful indicators, responsibilities and action-oriented governance practices. Alignment between strategy, measurement and operational activities is therefore essential, as strategic alignment helps ensure that performance measurement systems remain consistent with strategic priorities and support organisational performance (Pun & White, 2005; Bourne et al., 2003; Gede & Huluka, 2023). In this role, performance measurement systems link strategic priorities with operational control, managerial action and day-to-day organisational practices (Moon & Fitzgerald, 1996). However, organisations often face barriers when implementing performance measurement systems, including difficulties in integrating measurement into continuous improvement processes and ensuring consistent use across the organisation (Cunha et al., 2023). In this study, performance measurement is therefore understood not only as a technical monitoring system but as a governance mechanism that links strategy execution, action planning, managerial action and organisational learning.

3. Methodology

This study was undertaken as a case study within a Finnish organisation operating in the industrial sector. The name and detailed information of the company are not disclosed due to confidentiality reasons. The case study approach allows for an in-depth examination of the phenomenon in a real-life context, centring on the practical implementation of performance measurement systems and action planning as part of a strategy renewal process (Hussein, 2023). The case study approach provides a structured methodological approach to examining complex organisational environments (Miller et al., 2023). The case organisation is a Finnish SME operating in the

construction-related industrial sector. It was selected because it was undergoing a strategy renewal process and developing a new performance measurement system to support strategy implementation. The case organisation thus provided an opportunity to examine performance measurement and action planning in a real environment.

The strategy development process in the organisation for the strategy spanning the years 2025 to 2029 began during the last quarter of 2024 and was completed at the beginning of 2025 (Petriläinen, 2025). Table 1 depicts the five key strategic focus areas and their corresponding objectives. The empirical material consisted of internal strategy documents, performance measurement materials, action-planning documents, project-level reporting templates, meeting discussions and observations from the development process. The material was collected during the organisation's strategy renewal process in 2024–2026 and was used to describe how strategic objectives were translated into performance indicators, responsibilities and implementation actions. The analysis was conducted qualitatively by identifying the focus areas, related objectives, selected performance indicators, responsible roles and implementation phases, and by examining the material thematically in relation to the research question. The development process involved the case organisation's management and key personnel. Their involvement helped ensure the appropriateness of the selected indicators. The credibility of this study was strengthened through the use of multiple organisational data sources and iterative discussions with organisational representatives. The authors' familiarity with the case organisation supported access to relevant empirical material, while the analysis was conducted reflectively to ensure a systematic interpretation of the findings.

Table 1: Strategic focus areas and corresponding objectives (Petriläinen, 2025)

Focus area	Objectives
Standardisation of operations and improvement of efficiency	Harmonisation of project management and quality assurance processes
Development of personnel and competencies	Recruitment, competence development, and strengthening of employee wellbeing
Development of customer experience and partnerships	Building long-term customer relationships and partnerships
Sustainability and responsibility	Long-term and profitable business operations supported by responsible practices
Growth in existing markets	Increase in brand awareness and controlled expansion into new markets

The standardisation of operations and improvement of efficiency focuses on the development of project management and quality assurance processes across the organisation. The development of personnel and competencies includes recruitment, strengthening of skills, and support for employee wellbeing. The development of customer experience and partnerships aims to build long-term customer relationships and strengthen collaboration with stakeholders. Sustainability and responsibility cover the promotion of long-term and profitable business operations, as well as the development of responsible practices throughout the organisation. Growth in existing markets emphasises increasing brand awareness and controlled expansion into new markets.

Six main themes of the performance measurement system were identified: financial performance, personnel, occupational safety and environment, project performance, procurement and cost management, and customer satisfaction. Together, these form an integrated whole in which each dimension supports the others. Financial indicators, such as operating profit and cash flow, measure outcomes, while factors such as schedule adherence and job satisfaction represent drivers that influence financial performance. Financial indicators include EBIT (earnings before interest and taxes), ROI (return on investment) and ROS (return on sales). This type of cause-and-effect logic underpins the structure of the measurement system. The key indicators and their corresponding responsibilities are summarised in Table 2.

Table 2: Performance measurement system: indicators and responsibilities (Vartiala, 2025)

Measurement category	Indicators	Responsible roles
Financial performance	Operating profit, cash flow, working capital, equity ratio, ROI, ROS, revenue, EBIT, revenue per employee, order backlog	Finance manager, Chief Executive Officer
Personnel	Job satisfaction, employee turnover, competencies, innovation activities	Management, supervisors
Occupational safety and environment	TR index, accident frequency, near-miss incidents, safety observations, sick leave, waste monitoring, recycling rate	Site management, executive management
Schedule adherence	Project schedule adherence	Site management, executive management
Project margin	Project margin, deviation costs, number of variation errors, operational efficiency	Site management, executive management
Procurement and cost management	Hit rate, procurement costs (planned vs. actual), supplier performance, procurement process quality	Procurement, accounting, executive management
Customer satisfaction	Net Promoter Score (NPS), customer relationships, complaints	Site management, executive management

Emphasis was placed on contribution margin, which represents the profitability of a project after variable costs, as a key indicator because it integrates multiple dimensions and directly reflects the financial performance of projects. It is easy to calculate and interpret, and it can be influenced across all stages of the process, from procurement to planning and execution. For this reason, the contribution margin was retained as a core indicator. EBITDA (earnings before interest, taxes, depreciation and amortisation) provides a broader view by incorporating fixed costs and thus reflects the overall performance of the business. However, its direct steering effect is more limited.

The TR (Total Recordable) index, which measures the frequency of recorded occupational accidents relative to working hours, was retained as the primary indicator of occupational safety, as it is widely used in the industry, comparable and well established. At the same time, it was recognised that relying solely on a numerical TR value is insufficient. In the future, qualitative measures, such as the speed and effectiveness of corrective actions, will be introduced alongside it. However, the measurement of these was postponed to a later stage once reporting practices have been further clarified.

Customer satisfaction will be measured using a standardised feedback form applied at the end of each project. Net Promoter Score (NPS), a measure of customer willingness to recommend the organisation, will be the main indicator of customer satisfaction. The feedback enables the evaluation not only of the outcome but also of the collaboration and service experience during the project. The collected feedback serves not only as a quality assurance mechanism but also as a support tool for sales and customer relationship management.

4. Implementation and Findings of Performance Measurement

This section presents the implementation and findings in relation to the research question by showing how strategic objectives were translated into indicators, responsibilities and action-planning practices. To improve transparency, the section distinguishes between completed implementation stages, planned or ongoing activities, preliminary observations and outcomes supported by the available case evidence.

4.1 Phased Implementation and Action Planning

The implementation of the performance measurement system was undertaken in phases. To ensure controlled and effective implementation, a clear phased approach was designed. This approach supports organisational commitment, practical application and continuous development. The implementation began with defining the purpose and objectives of the measurement system. Senior management determined the primary purpose of the system, including what should be monitored and how it is linked to decision-making at both strategic and

operational levels. This was followed by the assignment of responsible individuals for each indicator or group of indicators, ensuring accountability for indicator definition, data collection and reporting.

Before full implementation, concepts and terminology were standardised to ensure a shared understanding of the indicators across the organisation. The measurement system was then tested through pilot use in selected projects or organisational units over several reporting cycles. This allowed potential shortcomings to be identified and practical applicability to be ensured.

Following the pilot phase, the measurement system was evaluated and refined. Unnecessary indicators were removed, definitions clarified, and measurement intervals adjusted. Once refined, the system was implemented across the organisation as part of regular management and reporting practices. Continuous utilisation and development are an integral part of the implementation process. Measurement results are actively used in decision-making, and feedback is systematically collected and used to update and improve the system.

Adherence to a structured approach helped to avoid common implementation challenges. A key risk is insufficient management commitment, which may prevent the system from being embedded in organisational practices. In addition, unclear indicator definitions or inconsistent terminology can lead to confusion and reduce the effectiveness of measurement. If personnel do not perceive the system as meaningful, or if it remains detached from operational activities, its utilisation is likely to remain limited. These risks were mitigated through participatory design, clear communication and pilot testing. Successful implementation also requires that measurement results are genuinely used in decision-making and development activities rather than for reporting purposes alone. Measurement without consequent actions provides limited value. Therefore, feedback discussions, review practices and continuous improvement processes were linked to the measurement system.

To provide a clear description of the implementation process, the key parts of performance measurement implementation are summarised in Table 3. The different phases reflect a structured approach ensuring alignment, usability and smooth adoption. The process from strategic definition to continuous utilisation and development is depicted. Presenting the process in a structured way helps clarify how strategic objectives were translated into concrete implementation steps and integrated into routine organisational practice.

Table 3: Phases of performance measurement system implementation (Vartiala, 2025)

Phase	Description
Definition of purpose and objectives	Senior management defines the primary purpose of the measurement system, specifying what should be monitored and how it supports decision-making at both strategic and operational levels
Assignment of responsibilities	Responsible individuals are assigned for each indicator or indicator group, including responsibility for definition, data collection, and reporting.
Standardisation of concepts and terminology	Key concepts and indicator definitions are standardised to ensure a shared and consistent understanding across the organisation.
Testing and pilot use of indicators	The measurement system is tested in selected projects or units for 2–3 reporting cycles to ensure practical applicability.
Analysis and refinement of results	After the pilot phase, the system is evaluated. Redundant indicators are removed, definitions are clarified, and measurement intervals are adjusted.
Organisation-wide implementation	The refined measurement system is implemented across the organisation as part of regular management and reporting practices.
Utilisation of feedback and continuous development	Measurement results are actively used in decision-making. Based on feedback, the system is continuously updated and improved.

The phased structure supports the notion that implementation is not a single event but an ongoing iterative process. The inclusion of pilot testing and feedback stages shows that emphasis is placed on learning and adaptation prior to full organisational execution.

4.2 Completed Implementation Stages

The implementation of the strategy was supported by a series of structured initiatives aimed at ensuring organisational alignment and commitment. Strategy launch events were organised across multiple locations in March 2026, during which the key elements of the strategy were presented. These events also introduced the upcoming project-level scorecard, company-level data collection practices and the rationale behind systematic performance measurement.

In addition, emerging regulatory and reporting requirements were taken into consideration. In particular, the organisation acknowledged the importance of ESG data collection, which will become increasingly relevant upon reaching a turnover threshold of €50 million. Consequently, early preparations were initiated to ensure future readiness. Employee commitment was further strengthened through the introduction of a structured engagement programme for white-collar employees. The main principles of the programme were defined, employee interest was surveyed, and implementation was initiated in March 2026. This initiative forms part of the broader strategic objective of attracting and retaining key personnel.

Changes were also made to the governance structure to support strategic development and growth. The composition of the board was revised, including the appointment of an external member to complement existing competencies. At the same time, adjustments were made to both the board and executive team structures to enhance professionalism, improve decision-making capacity, and address limitations related to time availability in governance work.

4.3 Completed, Planned and Ongoing Implementation Activities

The implementation of strategic performance metrics proceeds in phases. Initial deployment began in April 2026, followed by full pilot implementation in new projects starting in June 2026. While certain aspects of performance are already measured and reported, these practices have previously lacked consistency and systematic structure, with the exception of financial management. Financial reporting, budgeting and forecasting are already well established and are reflected in organisational performance outcomes.

During the initial implementation phase, a web-based data collection form was developed to support project-level reporting. In addition to financial forecasting, the form captures data on all key performance indicators. The collected data are aggregated into a company-level dataset that supports decision-making across the organisation. The form was not pilot-tested separately but was introduced simultaneously across all ongoing projects in April 2026. Feedback from site-level users has been positive, indicating that the tool is perceived as practical and easy to use. The system also includes automated reminders to ensure timely completion by responsible project personnel.

To support consistent implementation, training sessions were organised during May 2026. These included training on the use of the data collection form as well as separate training on project financial forecasting practices. The objective was to establish a unified approach to forecasting and reporting across all projects. These training activities played a key role in ensuring a shared understanding of the measurement system and reducing variation in how project-level data are interpreted and reported.

4.4 Preliminary Observations and Case Evidence

While the data collection process has been successfully implemented, the company-level reporting structure still requires further refinement to fully support analysis and decision-making. The long-term effectiveness of the system will depend on continued use and the accumulation of reliable data over time. In parallel, organisational governance structures were redefined to support more efficient decision-making. The separation of board and executive functions, the appointment of an external chairperson and a reduction in board size appear to have supported organisational agility and clearer decision-making practices. These changes were perceived to support faster decision-making and allow key personnel to focus more effectively on their core responsibilities. The inclusion of an external board professional has furthermore introduced a higher level of structure and accountability to governance practices, as well as strengthened expectations for systematic management and performance monitoring.

5. Discussion

As highlighted by Schrage et al. (2024), performance measurement should be understood as a strategic activity rather than a neutral or purely technical process. This perspective is reflected in the findings of this case study, where performance measurement was used not only for monitoring purposes but also to shape decision-making, learning and the practical execution of strategy. The findings are also consistent with prior research emphasising that performance measurement systems influence organisational outcomes only if they are embedded in everyday managerial practices and understood by organisational members (Bourne et al., 2003; Chopra et al., 2017; Gago-Rodriguez & Vikson, 2023).

The theoretical contribution of this study lies in showing how performance measurement and action planning can jointly support strategy implementation in a real organisational setting. The case illustrates that indicators alone are not sufficient; their strategic value depends on how they are connected to responsibilities, reporting

practices, feedback routines and managerial follow-up. The study thus extends previous discussion on performance measurement by emphasising its role as a governance mechanism that links strategic objectives with operational action.

At the same time, the findings should be interpreted with caution. The observed improvements in coordination, reporting practices and managerial follow-up may not result from the measurement system alone, but from the combined effects of the strategy renewal process, training activities, governance changes and increased managerial attention. It should also be noted that some implementation activities are still ongoing, and the long-term organisational impact cannot yet be fully observed. Therefore, the case provides preliminary but useful insight into how structured measurement and action planning can support strategy execution in a practical environment.

The findings further highlight the practical importance of a structured and phased implementation approach. In the case organisation, the definition of purpose, assignment of responsibilities, shared data collection structure and targeted training initiatives supported more consistent practices across projects. These findings are in line with earlier research highlighting the challenges and barriers related to the implementation of performance measurement systems (Bourne et al., 2003; Cunha et al., 2023).

6. Conclusion

This study examined how performance measurement and action planning can support the practical implementation of organisational strategy in a Finnish industrial SME. The findings highlight the importance of a structured implementation process, including a clear definition of purpose, assignment of responsibilities, pilot testing and continuous refinement.

The study contributes to the literature by providing an empirical example of how performance measurement and action planning can be implemented in practice. The case suggests that performance measurement systems are more likely to support strategy implementation when they are clearly linked to decision-making, understood by organisational members and embedded in regular management and reporting practices.

A limitation of the study is that it is based on a single case, which limits the generalisability of the findings. Future research could examine similar implementation processes in different organisational contexts and explore the long-term effects of performance measurement and action planning on organisational performance and strategic adaptation.

Ethics Declaration: This work did not require ethical clearance.

AI Declaration: Microsoft Copilot was used to support language editing, spelling and grammar checking, and formatting consistency. The authors remain fully responsible for the content, analysis, interpretations and conclusions of the manuscript.

References

Abdullah, S.N. and Yusof, T. (2013) 'Implementation of the Balanced Scorecard (Pelaksanaan kad skor berimbang)'.

Bourne, M., Neely, A., Mills, J. and Platts, K. (2003) 'Implementing performance measurement systems: a literature review', *International Journal of Business Performance Management*, 5(1), pp. 1–24. doi:10.1504/IJBPM.2003.002097.

Barros, R.S., Pimentel, L. and Vaz, E. (2026) 'Implementing a performance management system in a public organisation: barriers and outcomes', *Journal of Applied Accounting Research*, 27(6), pp. 1–21. doi:10.1108/JAAR-05-2024-0168.

Chopra, M., Gupta, V. and Chhabra, B. (2017) 'Strategic management using Balanced Scorecard: a case study on Tata Power', *Vision*, 21(1), pp. 36–43. doi:10.1177/0972262917730446.

Cunha, F., Dinis-Carvalho, J. and Sousa, R.M. (2023) 'Performance measurement systems in continuous improvement environments: obstacles to their effectiveness', *Sustainability*, 15(1), 867. doi:10.3390/su15010867.

Franco-Santos, M., Lucianetti, L. and Bourne, M. (2012) 'Contemporary performance measurement systems: A review of their consequences and a framework for research', *Management Accounting Research*, 23(2), pp. 79–119. doi:10.1016/j.mar.2012.04.001.

Gago-Rodríguez, S. and Vikson, T. (2023) 'Survey-based evidence on positive synergies between adaptive culture and a Balanced Scorecard', *Revista de Contabilidad*, 26(1), pp. 111–123. doi:10.6018/rcsar.418191.

Gede, D.U. and Huluka, A.T. (2023) 'The impact of strategic alignment on organizational performance: The case of Ethiopian universities', *Cogent Business & Management*, 10(2), article 2247873. doi:10.1080/23311975.2023.2247873.

Hristov, I., Chirico, A. and Camilli, R. (2022) 'The role of key performance indicators as a performance management tool in implementing corporate strategies: A critical review of the literature', *Finanza, Marketing e Produzione*, 1, pp. 67–85. doi:10.3280/FM2022-001004.

Hussein, A. (2023) 'How to conduct a case study: A guide for novice researchers', *Journal of Management & Engineering Integration*, 16(2), pp. 31–36.

Hrebiniak, L.G. (2006) 'Obstacles to effective strategy implementation', *Organizational Dynamics*, 35(1), pp. 12–31. doi:10.1016/j.orgdyn.2005.12.001.

Johnsen, Å., Solholm, K. and Tufte, P.A. (2024) 'Performance measurement system design as link between strategy formulation and performance information use in public sector organizations', *Public Performance & Management Review*, 47(4), pp. 813–848. doi:10.1080/15309576.2024.2360158.

Jusoh, R. and Parnell, J.A. (2008) 'Competitive strategy and performance measurement in the Malaysian context: an exploratory study', *Management Decision*, 46(1), pp. 5–31. doi:10.1108/00251740810846716.

Kaplan, R.S. and Norton, D.P. (2002) *The Strategy-Focused Organization: How Balanced Scorecard Companies Thrive in the New Business Environment*. Boston, MA: Harvard Business School Press.

Moon, P. and Fitzgerald, L. (1996) 'Delivering the goods at TNT: the role of the performance measurement system', *Management Accounting Research*, 7(4), pp. 431–457. doi:10.1006/mare.1996.0024.

Miller, E.M., Porter, J.E. and Barbagallo, M.S. (2023) 'Simplifying qualitative case study research methodology: A step-by-step guide using a palliative care example', *The Qualitative Report*, 28(8), pp. 2363–2379.

Mtau, T. and Rahul, N. (2024) 'Optimizing business performance through KPI alignment: A comprehensive analysis of key performance indicators and strategic objectives', *American Journal of Industrial and Business Management*, 14, pp. 66–82. doi:10.4236/ajibm.2024.141003.

Petriläinen, S. (2025) *Performance measurement in SMEs*. Master's thesis. LAB University of Applied Sciences. Available at: https://urn.fi/URN:NBN:fi:amk-2025051411852

Pun, K.F. and White, A.S. (2005) 'A performance measurement paradigm for integrating strategy formulation: A review of systems and frameworks', *International Journal of Management Reviews*, 7(1), pp. 49–71. doi:10.1111/j.1468-2370.2005.00106.x.

Schrage, M., Kiron, D., Candelon, F., Khodabandeh, S. and Chu, M. (2024) 'The future of strategic measurement: Enhancing KPIs with AI', *MIT Sloan Management Review*, 12 February. Available at: https://sloanreview.mit.edu/projects/the-future-of-strategic-measurement-enhancing-kpis-with-ai/

Sahoo, S. (2021) 'Aligning operational practices to competitive strategies to enhance the performance of Indian manufacturing firms', *Benchmarking*, 28(1), pp. 131–165. doi:10.1108/BIJ-03-2020-0128.

Striteska, M. and Spickova, M. (2012) 'Review and comparison of performance measurement systems', Journal of Organizational Management Studies, 2012, article 114900. doi:10.5171/2012.114900.

Teeratansirikool, L., Siengthai, S., Badir, Y. and Charoenngam, C. (2013) 'Competitive strategies and firm performance: the mediating role of performance measurement', *International Journal of Productivity and Performance Management*, 62(2), pp. 168–184. doi:10.1108/17410401311295722.

Tonchia, S. (2000) 'Linking performance measurement system to strategic and organisational choices', *International Journal of Business Performance Management*, 2(1/2/3), pp. 15–29. doi:10.1504/IJBPM.2000.000079.

Van der Stede, W.A., Chow, C.W. and Lin, T.W. (2006) 'Strategy, choice of performance measures, and performance', Behavioral Research in Accounting, 18(1), pp. 185–205. doi:10.2308/bria.2006.18.1.185.

Vartiala, M.-O. (2025) *Strategisen mittariston kehittäminen rakennusalan pk-yritykseen*. Master's thesis. LAB University of Applied Sciences. https://urn.fi/URN:NBN:fi:amk-2025103126795

Werner, M.J.E. et al. (2021) 'Exploring organizational resilience through key performance indicators', *Journal of Industrial and Production Engineering*, 38(1), pp. 51–65. doi:10.1080/21681015.2020.1839582.

Zairbani, A. and Jaya Prakash, S.K. (2025) 'Competitive strategy and organizational performance: a systematic literature review', *Benchmarking: An International Journal*, 32(1), pp. 52–111.

From Decision-maker to Decision Architect: Generative AI and the Changing Role of Leadership

Kristiina Brusila-Meltovaara and Lasse Torkkeli
LAB University of Applied Sciences, Lahti/Lappeenranta, Finland

Kristiina.Brusila-Meltovaara@lab.fi
Lasse.Torkkeli@lab.fi

Abstract: Generative artificial intelligence (GenAI) is becoming an integral part of managerial work, changing how leaders analyse information, communicate, coordinate, and decide. Much of the existing leadership literature emphasizes productivity effects or debates substitution versus augmentation. We argue that the more fundamental leadership challenge is the reconfiguration of decision authority and the design of decision processes across human–AI arrangements. As GenAI systems become more capable, context-aware, and agentic, leadership becomes less about individual judgement and more about structuring how judgement is distributed across human and AI actors. This conceptual paper asks how GenAI changes leadership decision-making in contemporary organizations. Drawing on research on algorithmic management, the automation–augmentation paradox, AI-mediated leadership, and principal–agent perspectives on AI agents, we develop a framework that positions leaders as decision architects, i.e., actors who deliberately design and govern decision processes rather than merely participate in them. The main contribution of the paper is a typology of four roles GenAI can have in leadership decision making, distinguished by the degree of AI autonomy and the locus of decision authority: AI as assistant, AI as advisor, AI as oversight partner, and AI as delegated actor. For each role, we discuss implications for decision rights, employee autonomy, and managerial expertise. We further argue that the agentic AI highlights classical delegation problems of goal alignment, information asymmetries, and control, turning governance decisions into a core leadership concern. By focusing on design of human–AI decision architectures, the paper contributes to leadership and organization literature by clarifying how GenAI can change concepts of authority, control, and legitimacy in contemporary organizations. We outline a research agenda on AI-augmented leadership capabilities, responsible delegation to AI agents, and the conditions under which GenAI can improve leadership legitimacy.

Keywords: Generative artificial intelligence, Leadership, Decision making, Decision architecture, Governance, Human–AI collaboration

1. Introduction

Generative artificial intelligence (GenAI) is rapidly becoming part of everyday managerial work, influencing how information is processed, decisions are prepared, and organisational coordination takes place (Feuerriegel et al. 2024; Bankins et al. 2024). Generative AI has been adopted rapidly, suggesting that its effects on managerial work are also diffusing at a great speed across organisations (Bick et al. 2026). Tools that draft, summarise, retrieve, analyse and increasingly act on behalf of users are entering management exceeds earlier waves of business analytics or expert systems. Generative AI can significantly affect highly skilled professional work, which suggests that its organisational implications extend well beyond routine or low-complexity tasks (Cui et al. 2026). A growing strategy and management literature has begun to take stock of these changes, debating whether AI primarily automates or augments managerial work (Raisch and Krakowski 2021; Krakowski et al. 2023), how it changes the sources of competitive advantage (Krakowski et al. 2023; Ruokonen and Ritala 2023, 2025), and how it changes the practice of leadership (De Cremer 2020; Van Quaquebeke and Gerpott 2023, 2024; Bankins et al. 2024).

Within these debates, much of the leadership-focused extant literature emphasises individual-level effects, for instance how leaders use AI to become more productive and how AI may substitute for some aspects of human judgement. While those debates are important, they tend to leave the underlying decision architecture in the background. The effects of adopting AI are determined not only by tool availability but also by managerial clarity, communication, and trust, highlighting the leader's role in transmitting and legitimising AI use across the organisation (Makridis 2026). To respond to this omission, we argue that the more fundamental implication of GenAI for leadership lies in how it reconfigures decision authority across human–AI arrangements. As GenAI systems become more capable, context-aware, and agentic, including being able to invoke tools, plan multi-step actions, and operate over extended time horizons (Jarrahi and Ritala 2025), leadership increasingly becomes less about making individual decisions and more about designing the processes through which decisions are made.

Building on this premise, we ask: How can generative AI change leadership decision-making in contemporary organisations? Rather than treating leadership and AI as separate domains of research, we conceptualise leadership work itself as the design and governance of human–AI decision architectures. To develop this argument, we integrate research on algorithmic management and algorithmic authority (Kellogg et al. 2020;

Jarrahi et al. 2021; Parent-Rocheleau and Parker 2022; Keegan and Meijerink 2025), the automation–augmentation paradox (Raisch and Krakowski 2021; Raisch and Fomina 2025), AI-mediated leadership and workplace communication (Van Quaquebeke and Gerpott 2023, 2024; Bankins et al. 2024), and emerging principal–agent perspectives on AI agents (Jarrahi and Ritala 2025).

The paper contributes by reframing GenAI-era leadership as decision-architecture design, developing a typology of four roles that GenAI in leadership work, and specifying how agentic AI turns delegation and governance into core leadership tasks. The paper proceeds as follows. Section 2 develops the theoretical framework. Section 3 introduces our typology of AI roles in leadership decision-making and the underlying conceptual model. Section 4 discusses the theoretical implications and contributions arising from the framework. Section 5 discusses the limitations, and Section 6 concludes with a research agenda.

2. Theoretical Framework

2.1 Generative AI in Managerial Work

GenAI differs from earlier waves of enterprise AI both in capability and in mode of use. Where earlier business analytics typically required dedicated infrastructure and specialist users, generative models are accessed through natural-language interfaces, embedded in everyday tools, and applied to weakly structured tasks that previously resisted automation (Feuerriegel et al., 2024). Recent literature suggests that knowledge workers using such tools experience substantial gains on tasks inside the system's competence but risk quality losses when tasks fall outside what Dell'Acqua et al. (2023) describe as a jagged frontier of capability. Generative AI may reform organisational knowledge creation processes by transforming how knowledge is generated, combined, and applied (He et al. 2026). For management, this implies that GenAI is not simply a productivity tool on top existing decision processes, but also a partial substitute and partial complement whose effects depend on how decision processes are designed around it (Zhang et al. 2026).

A second feature distinguishing the current wave is the move from chat-based assistance toward agentic systems capable of planning, invoking tools, and executing multi-step tasks on behalf of users (Jarrahi and Ritala, 2025). Such agents shift the relevant unit of analysis from "AI as input" to "AI as actor" and surface a principal–agent problem inside the firm: leaders need to specify goals, monitor execution, and assign responsibility for outcomes produced by semi-autonomous systems whose actions they did not directly perform (Jarrahi and Ritala, 2025). Strategy scholarship has begun to focus on what an AI-first orientation requires of organizations, emphasizing deliberate phased change rather than fragmented pilots (Ruokonen and Ritala, 2023, 2025), and treating AI as a strategic priority that alters processes and capabilities rather than as an isolated tool. The process-innovation benefits of generative AI depend on organisational conditions such as IT culture and organisational flexibility, strengthening the notion that generative AI adoption is affected by broader managerial and structural attributes rather than by technology itself (Marolla et al. 2026).

A review of the literature also suggests that generative AI has innovation potential, but realising these benefits requires attention to organizational, managerial, and implementation-related challenges (Sedkaoui and Benaichouba 2026). Organisational use depends on how barriers to adoption, such as perceived usefulness, compatibility, and social influence, are addressed (Albishri et al. 2026).

2.2 The Automation–Augmentation Paradox

A long-standing debate frames AI either as automating human work or as augmenting it (De Cremer, 2020; De Cremer and Kasparov, 2021). Raisch and Krakowski (2021) reformulate this as a paradox: organizations face the dual demand of automating routine tasks while simultaneously augmenting human judgement on novel ones, and these strategies are interdependent rather than substitutes. Subsequent work shows how hybrid problem-solving combines human and AI cognition under different task structures (Raisch and Fomina, 2025), and how AI shifts the basis of competitive advantage from data scale toward learning, integration, and orchestration capabilities (Krakowski et al., 2023). Murray, Rhymer and Sirmon (2021) further specify that humans and technology can be combined in qualitatively different forms of conjoined agency, with consequences for how authority, accountability, and skill are distributed.

For leadership, the paradox is consequential in that automation choices for one set of tasks change the augmentation conditions for adjacent tasks, including managerial ones. A team whose routine work is automated faces a different mix of exceptions, novel cases, and coordination challenges, which in turn changes what its leader actually does (Beane, 2022). Augmentation is therefore increasingly a result of automation decisions that also impact cognitive and relational structure of work in general.

2.3 Algorithmic Management and Algorithmic Authority

Parallel to the automation–augmentation debate, research on algorithmic management has examined how algorithms are increasingly used to direct, evaluate, and discipline workers (Kellogg et al., 2020; Parent-Rocheleau and Parker, 2022). Originally studied in platform contexts and gig work (Jarrahi et al., 2021), algorithmic management has now moved toward the "main stage" of organizational practice (Keegan and Meijerink, 2025). Kellogg et al (2020) identify six mechanisms through which algorithms exercise managerial control, and overall, this literature stream emphasizes that algorithms are vehicles of authority whose legitimacy depends on social acceptance, transparency, and contestability (Jarrahi et al., 2021).

GenAI extends and complicates this trajectory: While earlier algorithmic management relied on optimization over structured signals, GenAI generates text, plans, and recommendations that can directly influence subordinates' work without being recognized as managerial decisions. The decision thus becomes harder to locate, since it is partly in the prompt, partly in the model, and partly in the leader's selective use of the output. This diffusion of decision making across human and algorithmic actors raises the question of where authority resides and how its legitimacy is sustained (Grote et al., 2024; Cornelissen et al., 2024). Emerging research on manager clone agents suggests that AI systems may increasingly embody and enact managerial functions, thereby creating new opportunities for scale and consistency but also raising concerns about authority, legitimacy, and employee perceptions in AI-mediated workplaces (Hu et al. 2026).

2.4 From Decision-maker to Decision Architect

A complementary stream of research has proposed that leaders increasingly act as designers of decision processes rather than only as decision makers (Shrestha et al., 2019; Schrage and Kiron, 2025). Shrestha, Ben-Menahem and von Krogh (2019) distinguish full human-to-AI delegation, hybrid sequential and aggregated decision-making, and human–AI collaboration, arguing that the choice among them is itself a leadership decision. Schrage and Kiron (2025) extend this view, contending that intelligent choice architectures rewrite decision rights across the organization by determining which options humans see, in what order, with what defaults, and under what review. This view is also consistent with the findings on human-machine collaboration in strategy foresight, suggesting that generative AI can support strategic sensemaking without replacing the leader's role in framing, interpretation and judgement (Picavet et al. 2026).

We synthesize these streams of literature into a framework of AI-mediated leadership as decision-architecture design. The framework sees the leaders' primary task as the deliberate design and governance of human–AI decision processes, i.e. deciding which decisions to retain, which to delegate, which to share, and under what conditions of transparency, escalation and review. This reframing connects to research on trust in AI (Glikson and Woolley 2020), the ethical implications of AI for meaningful work (Bankins and Formosa, 2023), and the legitimacy of algorithmically mediated authority (Jarrahi et al., 2021; Cornelissen et al., 2024).

Ethical and governance considerations therefore form an integral part of decision architecture itself. As AI moves from assisting to advising, monitoring or acting, leaders should design safeguards for accountability, explainability, fairness as well as human oversight in particular when making decisions affecting employees, customers, the public or fall under regulatory requirements (Grote et al., 2024; Jarrahi et al., 2021; Bankins and Formosa, 2023; Van Quaquebeke and Gerpott, 2024).

3. Conceptual Model: A Typology of AI Roles in Leadership Decision-making

Building on the framework developed above, we propose a typology of four roles GenAI can occupy in leadership decision-making. The typology is organized along two dimensions. The first is the *degree of AI autonomy*, that is, the extent to which the AI system can act without human initiation or step-by-step direction, ranging from prompted, single-turn response generation to multi-step, tool-using, goal-pursuing operation. The second is the *locus of decision authority*, that is, the extent to which final decision rights for the focal task remain with the human leader, are shared with the AI, or are effectively transferred to the AI within delegated bounds. Crossing these dimensions yields four ideal-typical roles: AI as assistant, AI as advisor, AI as oversight partner, and AI as delegated actor (see Figure 1).

Figure 1 illustrates the four ideal-typical roles that GenAI can take in leadership decision-making across AI autonomy and the locus of decision authority. The typology also suggests that greater AI autonomy increases the need for governance intensity, accountability, human oversight and organisational risk management.

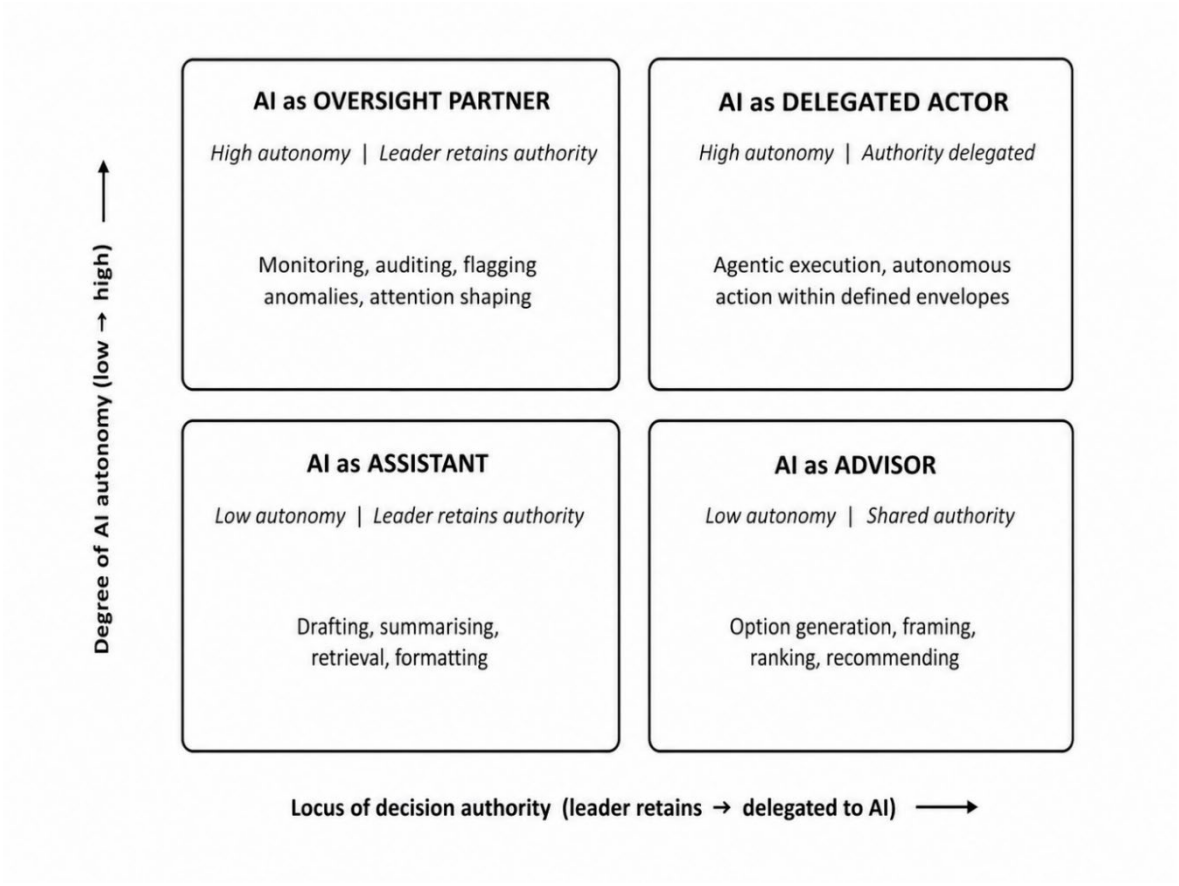


Figure 1: Typology of AI roles in leadership decision-making

3.1 AI as Assistant

In the assistant role, AI autonomy is low and decision authority remains squarely with the leader. The system drafts, summarizes, retrieves, translates, or formats on demand. Its outputs feed into the leader's existing judgement process, i.e., the leader inspects and edits before any externally visible decision is made. This role mirrors the experience of most current GenAI deployments in management, where chat-based tools support analysis, communication, and ideation. The benefit is augmentation of individual capacity, while the risk is that productivity gains on tractable tasks crowd out attention to the parts of leadership work that remain genuinely judgement-intensive (Dell'Acqua et al., 2023).

3.2 AI as Advisor

In the advisor role, AI autonomy remains relatively low, but decision authority is partially shared. In addition to the system producing material on demand, it also explicitly recommends options, courses of action, or risk assessments that frame the leader's choice. Formal authority is still with the leader, but the locus of consequential cognitive work (e.g., option generation, framing, and ranking) changes toward the AI. Echoing Schrage and Kiron's (2025) observation about intelligent choice architectures, the design of the AI's presentation of options becomes itself a decision-rights issue. The advisor role increases risks of anchoring on AI-generated framings and of competence erosion in option generation (Beane, 2022; Dell'Acqua et al., 2023). However, on the other hand it also offers leverage for more systematic, evidence-informed deliberation when used with appropriate counter-framings.

3.3 AI as Oversight Partner

In the oversight partner role, AI autonomy is high while decision authority for the focal task remains, by design, with humans. The system continuously monitors processes, flags anomalies, audits human decisions, and surfaces exceptions for human attention. Common examples include AI systems that screen documents for compliance issues, monitor team workload for risk of overload, or audit decision logs for bias. Here AI does not act in place of the leader as such, but it impacts the leader's perception by deciding what is worth attention. The role connects to algorithmic management's recording and rating mechanisms (Kellogg et al 2020) and brings

forward concerns about surveillance, privacy, and the legitimacy of algorithmic attention (cf. Parent-Rocheleau and Parker 2022; Keegan and Meijerink 2025).

3.4 AI as Delegated Actor

In the delegated actor role, AI autonomy is high and decision authority for a bounded class of decisions is effectively transferred to the AI. Within specified boundaries (e.g. budget or time constraints) the agent acts on behalf of the leader, executing tasks, sending communications, or making operational decisions. This is the role most directly implicated in the rise of agentic AI (Jarrahi and Ritala, 2025) and most distant from traditional models of leadership. The leader's role becomes to specify objectives, constraints, and escalation conditions and to review the overall outcomes generated by the AI. The notion of AI acting on behalf of managers is further reinforced by findings from research on manager clone agents, which suggests that delegated AI may replicate certain aspects of managerial communication and decision execution while introducing risks related to misrepresentation and reduced employee trust (Hu et al. 2026). Classical delegation problems of goal alignment, information asymmetry, and control are seen in a new form: the agent's preferences are model behaviours, and monitoring must operate over volumes of action that exceed human inspection (Grote et al., 2024).

Overall, the main implication of the typology is that governance decisions, such as escalation rules, transparency requirements, and responsibility allocation, are constitutive of the role itself. Whether a given system acts as assistant or as delegated actor often depends less on the underlying model and more on how the surrounding organizational architecture specifies authority, oversight, and accountability. What we mean by this is that two organizations deploying the same model may operate in different cells of the typology depending on their governance choices. This builds on, but differs from, prior work on AI-based decision structures, automation-augmentation tensions, AI leadership and intelligent choice architectures by shifting the focus from individual decisions and tools to distributed authority, accountability and judgement (Shrestha et al., 2019; Raisch and Krakowski, 2021; De Cremer, 2020; Schrage and Kiron, 2025).

4. Theoretical Implications

The typology has three main implications for leadership and organization theory. First, for *decision rights and authority*: The framework changes the unit of analysis from the leader's decision to the decision architecture in which the leader is embedded. This has theoretical consequences, since decision rights become endogenous to AI deployment, in that introducing an advisor role redistributes consequential cognitive labor even when formal authority is unchanged (Schrage and Kiron, 2025). Another theoretical implication is that organizational authority can no longer be cleanly determined to specific human positions, since the social acceptance of algorithmic outputs as binding or near-binding (Jarrahi et al., 2021; Cornelissen et al., 2024) now resides alongside positional authority, and the two may align or conflict.

The second implication relates to *employee autonomy and meaningfulness*: Each role has distinct implications for the autonomy of those whose work is mediated by AI. Assistant and advisor roles concentrate AI effects on the leader's own work while oversight partner roles extend AI's reach into the perceptual environment of subordinates, and delegated actor roles directly intervene in subordinates' workflows. Bankins and Formosa (2023) argued that meaningful work depends on conditions of autonomy, competence, and relatedness that can be undermined by indiscriminate AI mediation. Furthermore, the effects of generative AI on work are not limited to productivity and actually extend to job satisfaction while varying by the type of work involved (Bosek-Rak and Kaszyński 2026). Employees may not view AI-mediated collaboration as equivalent to working with human coworkers, which makes the implications of GenAI for job satisfaction and work experience especially important (Zahs and Schmodde 2026). The framework suggests that leaders, in choosing which role AI occupies for which decision, are also choosing which conditions of meaningful work to preserve or erode.

Finally, a reoccurring concern in the literature is that AI augmentation may erode the very expertise it relies on. Beane (2022) for instance shows how robotic surgery turns trainees into spectators, and Dell'Acqua et al. (2023) show that AI-assisted workers may stop developing judgement for problems near the jagged frontier. Translated to leadership, the typology implies that different role configurations train, or de-train, different managerial capabilities. Assistant roles preserve the leader's framing capability while improving execution, while delegated actor roles develop the leader's capability for objective specification and oversight design, potentially at the expense of operations. Seeing these as design choices, rather than emergent properties, is a defining task of decision-architecture leadership.

In practical terms, becoming a decision architect requires leaders to move from using GenAI as an individual productivity tool to deliberately designing how, where and under what conditions AI enters decision processes.

This includes identifying decisions suitable for assistance, advice, oversight or delegation; defining human review points; clarifying accountability for AI-mediated outcomes; and monitoring how AI use affect employee autonomy, organisational culture trust and managerial expertise.

5. Discussion

We acknowledge several limitations. First, the typology describes ideal types rather than stable assignments. Real systems and roles can change as capabilities evolve, as organizational confidence grows, or as market or industry conditions change. A model used as advisor in normal times may become a delegated actor for routine subsets and revert to advisor when anomalies arise. Managing such role transitions becomes part of the leader's work, including deciding when authority can be shared with AI, delegated under explicit safeguards or retained by human.

The typology is al context-sensitive: In highly regulated or safety-critical sectors such as finance, health care, education, government and public administration, AI roles are likely to require stronger human oversight, explainability and accountability. In contrast, manufacturing and platform organisations are often faced with more routine and data-intensive decisions, which may allow for greater delegation. Organisational size, culture, regulatory exposure and digital maturity therefore shape which AI roles are feasible in leadership decision-making.

Second, we note that the framework focuses specifically on decision making, not on the full range of leadership activities. Leadership involves identity work, sense-giving, and relational labour that GenAI does not directly substitute for or augment, even when it can imitate their surface forms (Van Quaquebeke and Gerpott, 2023, 2024). The typology is most informative for the cognitive-administrative lens of leadership and least so for its symbolic and relational dimensions.

Third, we acknowledge also that the legitimacy of any given configuration is socially negotiated. Algorithmic outputs that are in technical terms defensible may nonetheless lack legitimacy if subordinates perceive them as non-transparent, arbitrary, or unaccountable (Cornelissen et al., 2024; Jarrahi et al., 2021). Conversely, non-transparent human decisions are sometimes tolerated under conditions of trusted authority. Leaders therefore design not only the technical architecture but also the social arrangements through which AI-mediated decisions become trusted (Glikson and Woolley, 2020).

6. Conclusion

This conceptual paper has argued that generative AI's most consequential effect on leadership is not the automation or augmentation of individual decisions, but the rise of decision-architecture design as a main leadership task. We have positioned leaders as decision architects who deliberately structure how judgement is distributed across human and AI actors, and we have offered a typology of four AI roles in leadership decision-making (assistant, advisor, oversight partner, and delegated actor) distinguished by the degree of AI autonomy and the locus of decision authority. We have further argued that governance decisions about escalation, transparency, auditability, and responsibility are constitutive of these roles, and that the rise of agentic AI emphasizes classical delegation problems in new forms.

Future research should examine how organizations distribute decisions across the typology and which configurations shape decision equality, employee autonomy, and leadership legitimacy. Theoretically, the framework suggests integration with work on accountability and control (Grote et al 2024), trust in AI (Glikson and Woolley, 2020), conjoined agency (Murray et al., 2021), and strategic GenAI transformations (Ruokonen and Ritala, 2025). Methodologically, rapidly developing AI capabilities and dynamic role assignments call for longitudinal and process-oriented designs. Taking decision architecture seriously as a unit of analysis (rather than the individual leader or the individual AI tool only) opens leadership and governance research to questions that the current technological developments in GenAI is making unavoidable.

Ethics Declaration: This paper is conceptual and does not involve human subjects, identifiable individuals, or empirical data collection. Ethical clearance was therefore not required.

AI Declaration: In preparing this paper, the authors used generative AI to help organize the conceptual argument across sections, to proof-read the text, and to check the internal consistency of citations against the reference list. ChatGPT was used to improve the visual clarity of the figure, including image quality, layout readability, and font legibility. All theoretical positions, the choice of literature, the framing of the typology, and the final wording were determined by the authors, who reviewed, edited, and verified all AI-assisted suggestions.

References

Albishri, N., Rai, J.S., Attri, R., Yaqub, M.Z. and Walsh, S.T. (2026) "Breaking barriers: investigating generative AI adoption and organizational use", Journal of Enterprise Information Management, 39(1), pp. 267–288. doi:10.1108/JEIM-01-2025-0010.

Bankins, S. and Formosa, P. (2023) "The ethical implications of artificial intelligence (AI) for meaningful work", *Journal of Business Ethics*, 185(4), pp. 725–740. doi:10.1007/s10551-023-05339-7.

Bankins, S., Ocampo, A.C., Marrone, M., Restubog, S.L.D. and Woo, S.E. (2024) "A multilevel review of artificial intelligence in organizations: Implications for organizational behavior research and practice", *Journal of Organizational Behavior*, 45(2), pp. 159–182. doi:10.1002/job.2735.

Beane, M. (2022) "Today's robotic surgery turns surgical trainees into spectators", *IEEE Spectrum*, 59(8), pp. 32–37.

Bosek-Rak, D. and Kaszyński, D. (2026) "Generative AI, Job Satisfaction and Type of Work", Journal of Computer Information Systems, pp. 1–16. doi:10.1080/08874417.2026.2615836.

Bick, A., Blandin, A. and Deming, D.J. (2026) "The Rapid Adoption of Generative AI", Management Science. doi:10.1287/mnsc.2025.02523.

Cornelissen, J., Höllerer, M.A., Boxenbaum, E., Faraj, S. and Gehman, J. (2024) "Large language models and the future of organization theory", *Organization Theory*, 5(2), pp. 1–20. doi:10.1177/26317877241239055.

Cui, K.Z., Demirer, M., Jaffe, S., Musolff, L., Peng, S. and Salz, T. (2026) "The effects of generative AI on high-skilled work: Evidence from three field experiments with software developers", *Management Science*. doi:10.1287/mnsc.2025.00535.

De Cremer, D. (2020) *Leadership by Algorithm: Who Leads and Who Follows in the AI Era?*, Harriman House, Petersfield.

De Cremer, D. and Kasparov, G. (2021) "AI should augment human intelligence, not replace it", *Harvard Business Review*, 18 March. Available at: https://hbr.org/2021/03/ai-should-augment-human-intelligence-not-replace-it

Dell'Acqua, F., McFowland, E., Mollick, E.R., Lifshitz-Assaf, H., Kellogg, K.C., Rajendran, S., Krayer, L., Candelon, F. and Lakhani, K.R. (2023) *Navigating the Jagged Technological Frontier: Field Experimental Evidence of the Effects of AI on Knowledge Worker Productivity and Quality*, Harvard Business School Working Paper No. 24-013. doi:10.2139/ssrn.4573321.

Feuerriegel, S., Hartmann, J., Janiesch, C. and Zschech, P. (2024) "Generative AI", *Business & Information Systems Engineering*, 66(1), pp. 111–126. doi:10.1007/s12599-023-00834-7.

Glikson, E. and Woolley, A.W. (2020) "Human trust in artificial intelligence: Review of empirical research", *Academy of Management Annals*, 14(2), pp. 627–660. doi:10.5465/annals.2018.0057.

Grote, G., Parker, S.K. and Crowston, K. (2024) "Taming artificial intelligence: A theory of control-accountability alignment among AI developers and users", *Academy of Management Review*, advance online publication. doi:10.5465/amr.2023.0117.

He, X., Antonczak, L. and Burger-Helmchen, T. (2026) "Revisiting ba: How generative AI transforms knowledge creation", Journal of Knowledge Management, 30(2), pp. 846–869. doi:10.1108/JKM-07-2025-1065.

Hu, Q., Xiao, Q., Cao, H. and Shen, H. (2026) "When Your Boss Is an AI Bot: Exploring Opportunities and Risks of Manager Clone Agents in the Future Workplace", in Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems (CHI '26). New York, NY: Association for Computing Machinery, Article 1518, pp. 1–21. doi:10.1145/3772318.3790987.

Jarrahi, M.H., Newlands, G., Lee, M.K., Wolf, C.T., Kinder, E. and Sutherland, W. (2021) "Algorithmic management in a work context", *Big Data & Society*, 8(2), pp. 1–14. doi:10.1177/20539517211020332.

Jarrahi, M.H. and Ritala, P. (2025) "Rethinking AI agents: A principal–agent perspective", *California Management Review*, [online]. Available at: https://cmr.berkeley.edu/2025/07/rethinking-ai-agents-a-principal-agent-perspective/

Keegan, A. and Meijerink, J. (2025) "Algorithmic management in organizations? From edge case to center stage", *Annual Review of Organizational Psychology and Organizational Behavior*, 12, pp. 395–422. doi:10.1146/annurev-orgpsych-110622-070928.

Kellogg, K.C., Valentine, M.A. and Christin, A. (2020) "Algorithms at work: The new contested terrain of control", *Academy of Management Annals*, 14(1), pp. 366–410. doi:10.5465/annals.2018.0174.

Krakowski, S., Luger, J. and Raisch, S. (2023) "Artificial intelligence and the changing sources of competitive advantage", *Strategic Management Journal*, 44(6), pp. 1425–1452. doi:10.1002/smj.3387.

Makridis, C.A. (2026) "The Organizational Transmission of AI: The Role of Managers on AI Adoption and Impact", CESifo Working Paper, No. 12373. doi:10.65864/ZPxksXFkfk.

Marolla, G., Sabbagh, P., Rosa, A. and McDermott, O. (2026) "Leveraging generative artificial intelligence for process innovation: the moderating role of IT culture and organisational flexibility", European Journal of Innovation Management, 29(11), pp. 427–444. doi:10.1108/EJIM-09-2025-1269.

Murray, A., Rhymer, J. and Sirmon, D.G. (2021) "Humans and technology: Forms of conjoined agency in organizations", Academy of Management Review, 46(3), pp. 552–571. doi:10.5465/amr.2019.0186.

Parent-Rocheleau, X. and Parker, S.K. (2022) "Algorithms as work designers: How algorithmic management influences the design of jobs", *Human Resource Management Review*, 32(3), 100838. doi:10.1016/j.hrmr.2021.100838.

Picavet, M.E.B., Maroni, P., Sandhu, A. and Desouza, K.C. (2026) "Human–Machine Collaboration for Strategy Foresight: The Case of Generative AI", Public Administration Review, 86(2), pp. 299–310. doi:10.1111/puar.70048.

Raisch, S. and Fomina, K. (2025) “Combining human and artificial intelligence: Hybrid problem-solving in organizations”, *Academy of Management Review*, 50(2), pp. 441–464. doi:10.5465/amr.2021.0421.

Raisch, S. and Krakowski, S. (2021) “Artificial intelligence and management: The automation–augmentation paradox”, *Academy of Management Review*, 46(1), pp. 192–210. doi:10.5465/amr.2018.0072.

Ruokonen, M. and Ritala, P. (2023) “How to succeed with an AI-first strategy?”, *Journal of Business Strategy*, advance online publication. doi:10.1108/JBS-08-2023-0178.

Ruokonen, M. and Ritala, P. (2025) “Managing generative AI for strategic advantage”, *Research-Technology Management*, 68(4), pp. 11–20. doi:10.1080/08956308.2025.2497687.

Schrage, M. and Kiron, D. (2025) “The great power shift: How intelligent choice architectures rewrite decision rights”, *MIT Sloan Management Review*, 28 January. Available at: https://sloanreview.mit.edu/article/the-great-power-shift-how-intelligent-choice-architectures-rewrite-decision-rights/

Sedkaoui, S. and Benaichouba, R. (2026) “Generative AI as a transformative force for innovation: a review of opportunities, applications and challenges”, European Journal of Innovation Management, 29(3), pp. 677–701. doi:10.1108/EJIM-02-2024-0129.

Shrestha, Y.R., Ben-Menahem, S.M. and von Krogh, G. (2019) “Organizational decision-making structures in the age of artificial intelligence”, *California Management Review*, 61(4), pp. 66–83. doi:10.1177/0008125619862257.

Van Quaquebeke, N. and Gerpott, F.H. (2023) “The now, new, and next of digital leadership: How artificial intelligence (AI) will take over and change leadership as we know it”, *Journal of Leadership & Organizational Studies*, 30(3), pp. 265–275. doi:10.1177/15480518231181731.

Van Quaquebeke, N. and Gerpott, F.H. (2024) “Artificial intelligence (AI) and workplace communication: Promises, perils, and recommended policy”, *Journal of Leadership & Organizational Studies*, advance online publication. doi:10.1177/15480518241289644.

Zhang, X., Qi, Z., Ma, L. and Zhang, G. (2026) “How and when employee–generative AI collaboration contributes to digital performance: a knowledge acquisition approach”, Journal of Knowledge Management, ahead-of-print. doi:10.1108/JKM-10-2024-1249.

Zahs, D. and Schmodde, L. (2026) “Would you rather work with ChatGPT or a human coworker? Exploring the impact of generative AI on job satisfaction”, *Review of Managerial Science*. doi:10.1007/s11846-026-01004-1.

Responsible AI Governance for Student-Centred Digital Transformation in Higher Education

Mark Anthony Camilleri
University of Malta, Imsida, Malta

Mark.A.Camilleri@um.edu.mt

Abstract: The digitalisation of higher education as well as the recent advances in generative and agentic artificial intelligence (AI) are transforming teaching and learning, academic leadership, institutional governance and student support services. AI-enabled technologies provide opportunities to personalise learning, improve educational decision-making, enhance administrative efficiency and foster innovation across universities. However, their widespread adoption also raises concerns regarding their algorithms' transparency, explainability, fairness, accountability, privacy, academic integrity and stakeholder trust. Consequently, responsible AI governance is emerging as a strategic institutional capability that facilitates student-centred digital transformation while safeguarding ethical, educational and societal values. This conceptual paper examines how responsible AI governance can support higher education institutions in fostering digital transformation within an increasingly complex technological and regulatory environment. Building on recent advances in AI governance and explainable artificial intelligence (XAI), it proposes a conceptual framework that integrates governance mechanisms with institutional capabilities to promote transparent, trustworthy and student-centred AI adoption. The framework synthesises principles of ethical oversight, algorithmic transparency, explainability, risk management, regulatory compliance, stakeholder engagement, human oversight, and continuous evaluation. It argues that explainability should be regarded as an institutional capability that empowers educators, supports informed student engagement, strengthens academic decision-making and reinforces institutional legitimacy. The proposed framework demonstrates how responsible AI governance can enhance strategic alignment, organisational learning, interdisciplinary collaboration, knowledge sharing and digital resilience while supporting equitable educational innovation. It also considers the implications of AI for curriculum design, assessment, student engagement, academic work and human-AI collaboration. This contribution extends the literature on responsible AI in a higher educational context. It offers practical guidance for university leaders, educators, policymakers and quality assurance bodies who are seeking to implement trustworthy AI systems that strengthen institutional effectiveness and promote student-centred digital transformation. Therefore, it supports the achievement of SDG 4 (Quality Education) and SDG 9 (Industry, Innovation and Infrastructure) by advancing responsible AI governance and digital innovation in higher education.

Keywords: Responsible AI governance, Generative AI, Agentic AI, Higher education, Explainable artificial intelligence (XAI), Student-centred learning

1. Introduction

Higher education institutions are experiencing rapid digital transformation as advances in generative and agentic artificial intelligence (AI) are supporting teaching, learning and research activities, as well as institutional governance and student support services (Slimi et al., 2023). AI-enabled technologies provide opportunities to personalise learning, improve educational decision-making, automate administrative processes and enhance institutional effectiveness (Fu and Weng, 2024). However, their widespread adoption also raises important concerns regarding transparency, explainability, fairness, accountability, privacy, academic integrity and stakeholder trust (Nguyen, 2025). These challenges have increased the need for responsible AI governance that enables universities to adopt AI in ways that are ethically sound, legally compliant and aligned with their educational missions Aler (Tubella et al., 2024).

Recent studies have explored responsible AI, explainable artificial intelligence (XAI) and AI governance from technical, organisational and educational perspectives (Barus et al., 2025; Khan et al., 2025). Nevertheless, the literature remains fragmented, with much of the existing work focusing on individual governance principles or specific AI applications rather than providing an integrated institutional perspective (Camilleri, 2026). Moreover, the latest evolution of generative and agentic AI has introduced new governance challenges that require universities to develop institutional capabilities capable of supporting trustworthy and student-centred AI adoption (Wu et al., 2024; Yan et al., 2025). Consequently, there is a need to consolidate the emerging evidence and to develop a comprehensive framework that links governance mechanisms with higher education institutions' strategic objectives.

This paper examines how responsible AI governance can facilitate student-centred digital transformation in higher education. Specifically, it aims to: (i) synthesise recent literature on responsible AI governance in higher education; (ii) identify the principal governance mechanisms, institutional capabilities and recurring research themes emerging from contemporary studies; (iii) develop a novel conceptual framework that explains the

relationship between responsible AI governance and institutional capability development; and (iv) propose implications for practice together with future research directions. To achieve these objectives, the study adopts a systematic literature review methodology. It analyses thirty of the most cited scholarly articles published during the past four years, thereby capturing influential and contemporary contributions in this rapidly evolving field. The review synthesises existing knowledge, identifies common themes and highlights research gaps that inform the development of a conceptual model. The proposed framework integrates governance mechanisms, including ethical oversight, algorithmic transparency, explainability, risk management, regulatory compliance, stakeholder engagement, human oversight and continuous evaluation, with institutional capabilities that support trustworthy AI adoption and sustainable digital transformation.

This paper adds value to the extant literature in several ways. It provides a timely synthesis of recent research on responsible AI governance in higher education and advances a novel conceptual framework that positions explainability as an institutional capability that supports informed decision-making, stakeholder trust and organisational learning. By connecting governance mechanisms with institutional capabilities, the framework extends existing research beyond technology-focused perspectives and offers a holistic understanding of responsible AI implementation within universities. This contribution concludes by discussing implications for academia, higher education leaders, practitioners and policymakers, while identifying future research directions that can further advance responsible AI governance and student-centred digital transformation in higher education.

2. Methodology

This study adopts a systematic literature review methodology to identify, evaluate and synthesise contemporary research on responsible artificial intelligence (AI) governance in higher education. The review follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure transparency, consistency and reproducibility throughout the identification, screening and selection of the literature, while minimising selection bias (Moher et al., 2009). The Scopus database was selected as the primary source of scholarly publications because of its comprehensive coverage of high-quality, peer-reviewed journals across the fields of education, information systems, computer science, management and public policy. It was considered particularly appropriate for capturing recent interdisciplinary research relating to responsible AI, AI governance and higher education.

The initial search was conducted within article titles, abstracts and keywords by using the following search query: **TITLE-ABS-KEY ("responsible AI" OR "AI governance" AND "higher education")**. This search retrieved **383** publications. To improve relevance and ensure the inclusion of the latest, peer-reviewed, high impact research, the search was refined by restricting the results to journal articles and review papers published in English between **2023 and 2026**. Hence, the advanced search query was: **TITLE-ABS-KEY ("responsible AI" OR "AI governance" AND "higher education") AND (LIMIT-TO (DOCTYPE,"ar") OR LIMIT-TO (DOCTYPE,"re")) AND (LIMIT-TO (LANGUAGE,"English")) AND PUBYEAR > 2022 AND PUBYEAR < 2027**. The refined search yielded **227** publications. To identify the most influential contributions in this rapidly evolving field, the retrieved records were ranked according to citation counts. Thirty (30) of the most-cited publications were subsequently selected for detailed full-text analysis. Table 1 summarises the research objectives and methodologies of these publications included in the systematic literature review.

Table 1: An overview of the research objectives and methodological approaches of the most-cited publications

Publication	Research objective	Methodology
Abuzar et al. (2025)	Examine students' trust, AI reliance and critical engagement strategies.	Mixed methods
Acosta-Enriquez et al. (2025)	Identify factors influencing researchers' adoption of AI models in academia.	Quantitative survey
Aler Tubella et al. (2024)	Review approaches for teaching responsible AI in higher education.	Literature review
Alhur et al. (2025)	Explore educators' dependence on AI in medical higher education.	Qualitative interviews

Publication	Research objective	Methodology
Barrientos et al. (2024)	Investigate students' perceptions of generative AI and academic integrity.	Exploratory qualitative
Barus et al. (2025)	Explore students' perceptions of generative AI governance in universities.	Mixed methods
Fu and Weng (2024)	Synthesize responsible human-centred AI practices in education.	Systematic review
Gavira Durón and Jiménez-Preciado (2025)	Analyse AI research trends in higher education.	NLP analysis
Hamamra et al. (2026)	Examine educators' experiences integrating AI in Palestinian universities.	Phenomenological study
Jia, Pan and Neary (2025)	Examine effects of GenAI dependency on students' achievement and self-efficacy.	Quantitative survey
Kanont et al. (2024)	Identify factors influencing Thai students' adoption of Generative AI.	SEM survey
Kazimova et al. (2025)	Review AI applications and benefits in university education.	Systematic review
Khan et al. (2025)	Examine AI's role in sustainable higher education transformation.	Case studies
Lo and Chan (2025)	Investigate Hong Kong students' perceptions of AI in higher education.	Questionnaire survey
Malik et al. (2025)	Explore opportunities and challenges of conversational AI in higher education.	Semi-structured interviews
Nguyen (2025)	Examine ethical and pedagogical principles for AI integration in higher education.	Literature review
Nurtanto et al. (2025)	Identify determinants of AI use intention and learning performance.	SEM survey
Oncioiu and Bularca (2025)	Examine knowledge management's role in responsible AI awareness.	Quantitative survey
Parker et al. (2025)	Compare AI governance policies across leading universities worldwide.	Comparative policy analysis
Reiter et al. (2025)	Investigate responsible AI adoption for institutional decision-making.	Case study

Publication	Research objective	Methodology
Richter et al. (2025)	Assess AI literacy needs among higher education stakeholders.	Mixed methods
Schei et al. (2024)	Explore students' attitudes towards generative AI in higher education.	Qualitative interviews
Slimi and Carballido (2023)	Review opportunities, risks and governance of ChatGPT in higher education.	Literature review
Sousa and Cardoso (2025)	Examine ethical governance practices for AI-enabled higher education.	Conceptual analysis
Valdivieso and Gonzalez (2025)	Examine AI competencies required for responsible educational practice.	Systematic review
Werdiningsih et al. (2024)	Investigate students' acceptance and ethical concerns regarding generative AI.	Quantitative survey
Wu et al. (2024)	Develop institutional AI governance framework for universities.	Conceptual framework
Yan et al. (2025)	Examine human-centred governance for responsible AI integration.	Conceptual analysis
Zawacki-Richter et al. (2025)	Synthesize responsible AI research and future directions in higher education.	Systematic review

Note: These citations are arranged alphabetically by the first author's surname.

The selected studies were analysed using a thematic synthesis approach. Recurring concepts, governance mechanisms and institutional capabilities were identified and grouped into higher-order themes. The analysis revealed several prominent areas of investigation, including ethical AI governance and institutional oversight, transparency and explainable AI, accountability and regulatory compliance, privacy and data governance, academic integrity and trustworthy AI, stakeholder engagement and human oversight, as well as AI-enabled digital transformation and institutional capability development. These themes informed the development of a novel conceptual framework that integrates responsible AI governance mechanisms with institutional capabilities to facilitate transparent, trustworthy and student-centred digital transformation in higher education. Finally, the framework provides the foundation for discussing theoretical implications, practical recommendations for university leaders and policymakers, as well as future research directions.

3. Results and Discussion

The systematic review indicates that responsible AI governance has rapidly emerged as a multidisciplinary research area that extends beyond the technical implementation of artificial intelligence to encompass institutional, pedagogical, ethical and regulatory considerations (Slimi and Carballido, 2023). Across the reviewed studies, a common consensus is that AI has considerable potential to transform higher education by

enhancing personalised learning (Hamamra et al., 2026; Kazimova et al., 2025; Nguyen, 2025), supporting academic decision-making (Mahrishi et al., 2025; Nurtanto et al., 2025; Reiter et al., 2025), improving assessment practices (Acosta et al., 2025; Alhur et al., 2025; Hamamra et al., 2026) and increasing institutional efficiency (Fun and Weng, 2024; Kanont et al., 2024; Schei et al. 2024). At the same time, researchers consistently emphasise that these benefits can only be realised through robust governance mechanisms that promote transparency, accountability and responsible AI adoption (Malik et al., 2025; Sousa and Cardoso, 2025; Werdiningsih et al., 2024).

Several recurring themes emerged from the literature. The first concerns **ethical AI governance**, with studies highlighting the need for institutional policies that address fairness, bias, transparency, accountability and privacy while safeguarding academic integrity and stakeholder trust (e.g., Aler Tubella et al., 2024; Camilleri, 2024; Slimi and Carballido, 2023; Yan et al., 2025). Closely related is the growing emphasis on **AI governance frameworks**, where scholars advocate formal governance structures, institutional guidelines and continuous oversight to regulate the responsible deployment of AI technologies within universities (Barus et al., 2025; Oncioiu and Bularca, 2025; Wu et al., 2024). A second prominent theme focuses on **teaching, learning and assessment**. The reviewed studies demonstrate how generative AI can personalise learning, enhance feedback, support curriculum design and improve assessment, while simultaneously creating challenges associated with academic misconduct, authenticity and excessive dependency on AI systems (Ilieva et al., 2025; Nguyen, 2025; Malik et al., 2025; Nadim and Di Fuccio, 2025). Consequently, several authors argue that AI should augment, rather than replace, human judgement and pedagogical practice (Oncioiu and Bularca, 2025; Yan et al., 2025). The literature also identifies **AI literacy** (Fu and Weng, 2024; Richter et al., 2025; Valdivieso and Gonzalez, 2025) **and institutional capability development** (Ilieva et al., 2025; Khan et al., 2025; Malik et al., 2025) as essential prerequisites for responsible adoption. Universities are encouraged to invest in educator and student competencies, professional development, interdisciplinary collaboration and knowledge-sharing practices that enable informed and ethical AI use (Aler Tubella et al., 2024; Kelley and Wenzel, 2025; Oncioiu and Bularca, 2025). Complementing this perspective, studies on **student perceptions and technology acceptance** demonstrate generally positive attitudes towards generative AI, although concerns regarding reliability, ethical use, authenticity and critical thinking remain significant (Kanont et al., 2024; Schei et al., 2024; Sousa and Cardoso, 2025; Werdiningsih et al., 2024).

In sum, the review reveals that existing research has primarily examined governance mechanisms, ethical principles and AI adoption from individual or application-specific perspectives. Comparatively limited attention has been given to integrating these elements into a holistic institutional governance model. This knowledge gap provides the rationale for advancing a novel conceptual framework, which links responsible AI governance mechanisms with institutional capabilities to support trustworthy, student-centred digital transformation in higher education.

Figure 1 illustrates that responsible AI governance should be viewed as an integrated institutional system rather than a collection of isolated policies or technical controls. The model proposes that governance mechanisms form the foundation upon which higher education institutions develop organisational capabilities that ultimately improve educational outcomes and strengthen digital transformation. The framework positions it as an enabling capability that supports innovation while reducing ethical, legal and operational risks (Wu et al., 2024; Yan et al., 2025). In plain words, the first layer of the framework consists of governance mechanisms, including ethical oversight, algorithmic transparency, explainability, risk management, regulatory compliance, stakeholder engagement, human oversight and continuous evaluation. These mechanisms are closely interconnected and should operate collectively. For example, transparency allows stakeholders to understand how AI systems reach their outputs, while explainability provides meaningful reasons for those outputs, by enabling educators and students to challenge or verify AI-generated recommendations when necessary (Nguyen, 2025; Sousa and Cardoso, 2025). Similarly, continuous evaluation enables universities to monitor AI performance over time. This ensures that systems remain accurate, fair and aligned with institutional values, as technologies and educational requirements evolve (Reiter et al., 2025).

The second layer of the framework focuses on institutional capabilities that emerge from effective governance. The reviewed studies indicate that universities require capabilities that extend beyond technological infrastructure. These include AI literacy among staff and students, interdisciplinary collaboration, knowledge-sharing practices, organisational learning and strategic leadership (Fu and Weng, 2024; Richter et al., 2025; Valdivieso and Gonzalez, 2025). Institutions that invest in these capabilities are better positioned to critically

evaluate AI systems, introduce appropriate governance policies and respond to emerging technological developments. This perspective is consistent with recent research that suggests that responsible AI adoption depends on organisational readiness, human competencies as well as on technical performance (Khan et al., 2025; Malik et al., 2025).

An important contribution of the proposed model is its emphasis on explainability as an institutional capability (Camilleri, 2026), rather than solely as a technical characteristic of AI systems. Although explainable AI has traditionally focused on making algorithms more interpretable, the literature increasingly suggests that universities must also develop organisational processes that enable educators, administrators and students to understand, question and appropriately use AI-generated information (Barus et al., 2025; Nguyen, 2025). In this context, explainability supports informed decision-making, strengthens accountability and increases stakeholder confidence in AI-assisted educational practices. The framework also highlights the dynamic relationship between governance and student-centred digital transformation. Effective governance contributes to improved teaching, assessment, student support services and administrative decision-making by ensuring that AI technologies are implemented responsibly. At the same time, successful AI implementation generates organisational learning that can inform future governance improvements through continuous monitoring and stakeholder feedback. This feedback loop reflects the iterative nature of responsible AI governance, where policies and institutional practices are regularly refined as mature technologies and new ethical and/or regulatory challenges emerge (Slimi and Carballido, 2023; Oncioiu and Bularca, 2025).

In a nutshell, Figure 1 demonstrates that responsible AI governance should be regarded as a strategic institutional capability that links the governance principles with organisational development and educational outcomes. The integration of governance mechanisms with institutional capabilities, provide a practical roadmap for universities to implement trustworthy AI while maintaining transparency, accountability, academic integrity and student-centred innovation (Aler Tubella et al., 2024; Zawacki-Richter et al., 2025).

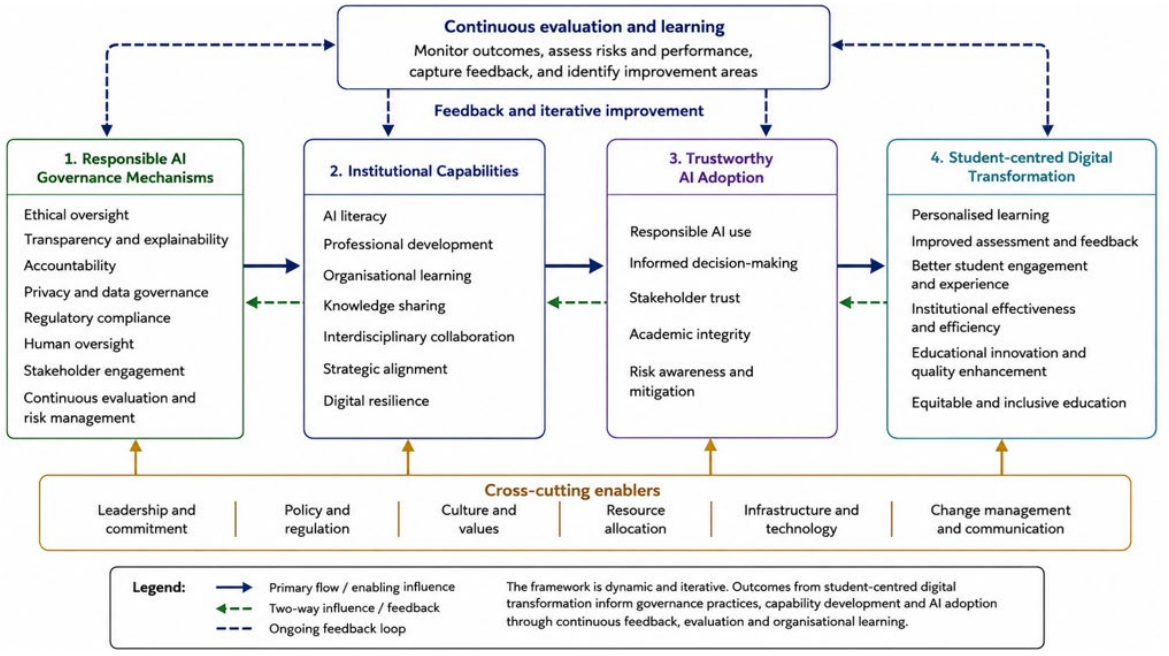


Figure 1: Responsible AI governance for student centred learning outcomes

4. Conclusions

This paper has examined the growing importance of responsible AI governance in supporting student-centred digital transformation within higher education institutions. The systematic review identified thirty of the most-cited publications on responsible AI governance in higher education published between 2023 and 2026; it synthesised their content, shed light on the main themes of study that emerged from the extant literature and advanced a conceptual framework that integrates governance mechanisms with institutional capabilities. The proposed framework demonstrates that responsible AI governance extends beyond regulatory compliance and

technical implementation. It positions AI governance as a strategic institutional capability that enables universities to adopt trustworthy AI while safeguarding educational, ethical and societal values.

From a theoretical perspective, this study contributes to the academic literature by consolidating fragmented research on responsible AI governance within higher education into a coherent conceptual model. It advances existing scholarship by linking governance mechanisms including ethical oversight, transparency, explainability, accountability, stakeholder engagement, human oversight and continuous evaluation with institutional capabilities that promote organisational learning, digital resilience and informed decision-making. Furthermore, the framework positions explainability as an institutional capability that strengthens trust, supports responsible AI adoption and reinforces institutional legitimacy. The study also offers practical implications for higher education leaders, educators, policymakers and quality assurance bodies. Universities should move beyond isolated AI initiatives and establish institution-wide governance structures supported by clear policies, ethical guidelines and continuous evaluation mechanisms. Investment in AI literacy, professional development and stakeholder engagement will be essential to ensure that educators and students can use AI responsibly and effectively. The framework may also assist policymakers and accreditation bodies in developing governance standards that encourage innovation while maintaining transparency, accountability and academic integrity.

Despite these contributions, the study has its limitations. The systematic review was restricted to publications indexed in the Scopus database, written in English and published between 2023 and 2026. In addition, the analysis focused on thirty of the most-cited publications, which may have excluded recent studies that have not yet accumulated substantial citation counts. As a conceptual study, the proposed framework has not been empirically validated, as yet, therefore it should be regarded as a foundation for future investigation. Future research should empirically examine the proposed framework across different higher education contexts using qualitative, quantitative and mixed-methods approaches. Comparative studies involving institutions from different countries and educational systems could provide further insights into contextual differences in responsible AI governance. Researchers may also investigate how governance capabilities influence institutional performance, student outcomes, trust and AI adoption over time. Finally, as generative and agentic AI technologies continue to evolve, future studies should examine how governance frameworks can remain adaptive, transparent and resilient within rapidly changing technological and regulatory environments.

Acknowledgements

This project was funded through XJENZA Malta–CNR SPIRE-GUIDE project (2026-2028).

Ethics Declaration: Ethical approval was obtained from the University of Malta's Faculty Research Ethics Committee, on 9th July 2026 (Ref: MAKS-2026-00108), before undertaking the literature review.

AI Declaration: The author used generative artificial intelligence (AI) tools exclusively for language editing rather than for generating scientific content.

References

Abuzar, M. (2025) "University Students' Trust in AI: Examining Reliance and Strategies for Critical Engagement", *International Journal of Interactive Mobile Technologies*, Vol. 19, No. 7.

Acosta-Enriquez, B. G., Ballesteros, M. A., Pérez, C. R. V., Jordan, O. H., Vergara, J. A. M., Acosta, R. M., ... and Castillo, J. C. A. (2025) "AI in academia: how do social influence, self-efficacy, and integrity influence researchers' use of AI models?", *Social Sciences and Humanities Open*, 11, 101274

Aler Tubella, A., Mora-Cantallops, M. and Nieves, J.C. (2024) "How to teach responsible AI in higher education: Challenges and opportunities", *Ethics and Information Technology*, Vol. 26, Art. 3.

Alhur, A.A., Khlaif, Z.N., Hamamra, B. and Hussein, E. (2025) "Paradox of AI in higher education: Qualitative inquiry into AI dependency among educators in Palestine", *JMIR Medical Education*, Vol. 11, Art. e74947.

Barrientos, A. A., Del Mundo, M. A., Inoferio, H. V., Adjid, M. A., Hajan, H. B., Ullong, M. M., ... and Espartero, M. M. (2024) "Discourse analysis on academic integrity generative AI: Perspectives from science and mathematics students in higher education" *Environment & Social Psychology*, Vol. 9, No. 9.

Barus, O.P., Hidayanto, A.N., Handri, E.Y., Sensuse, D.I. and Yaiprasert, C. (2025) "Shaping generative AI governance in higher education: Insights from student perception", *International Journal of Educational Research Open*, Vol. 8, 100452.

Camilleri, M.A. (2024) "Artificial intelligence governance: Ethical considerations and implications for social responsibility", *Expert Systems*, Vol. 41, No. 7, Art. p.e13406.

Camilleri, M.A. (2026) "Opening the black box: Operational principles, tools and frameworks that advance explainable artificial intelligence (XAI) models", *Technological Forecasting and Social Change*, Vol. 229, 124710.

Chaaban, Y., Qadhi, S., Chen, J. and Du, X. (2024) "Understanding researchers' AI readiness in a higher education context: Q methodology research", *Education Sciences*, Vol. 14, No. 7, Art. 709.

Fu, Y. and Weng, Z. (2024) "Navigating the ethical terrain of AI in education: A systematic review on framing responsible human-centered AI practices", *Computers and Education: Artificial Intelligence*, Vol. 7, 100306.

Gavira Durón, N. and Jiménez-Preciado, A. L. (2025) "Exploring the role of AI in higher education: a natural language processing analysis of emerging trends and discourses*", TQM Journal*, Vol. 38, No. 3, pp. 673–693.

Hamamra, B., Khlaif, Z. N. and Mayaleh, A. (2025) "Between promise and precarity: Palestinian university educators' experiences with AI integration in higher education", *Interactive Learning Environments*, Vol. 34, No. 4, pp. 2574-2589.

Ilieva, G., Yankova, T., Ruseva, M. and Kabaivanov, S. (2025) "A framework for generative AI-driven assessment in higher education", *Information*, Vol. 16, No. 6, Art. 472.

Jia, W., Pan, L. and Neary, S. (2025) "Effect of GenAI Dependency on University Students' Academic Achievement: The Mediating Role of Self-Efficacy and Moderating Role of Perceived Teacher Caring", *Behavioral Sciences*, Vol. 15, No. 10, Art. 1348.

Kanont, K., Pingmuang, P., Simasathien, T., Wisnuwong, S., Wiwatsiripong, B., Poonpirome, K., Songkram, N. and Khlaisang, J. (2024) "Generative-AI, a learning assistant? Factors influencing higher-ed students" technology acceptance", *Electronic Journal of e-Learning*, Vol. 22(Special Issue 6), pp. 18–33.

Kazimova, D., Tazhigulova, G., Shraimanova, G., Zatyneyko, A. and Sharzadin, A. (2025) "Transforming university education with AI: A systematic review of technologies, applications, and implications", *International Journal of Engineering Pedagogy*, Vol. 15, No. 1, pp. 4–24.

Kelley, M. and Wenzel, T. (2025) "Advancing artificial intelligence literacy in teacher education through professional partnership inquiry", *Education Sciences*, Vol. 15, No. 6, Art. 659.

Khan, S., Mazhar, T., Shahzad, T., Khan, M.A., Rehman, A.U., Saeed, M.M. and Hamam, H. (2025) "Harnessing AI for sustainable higher education: Ethical considerations, operational efficiency, and future directions", *Discover Sustainability*, Vol. 6, no. 1, Art. 23.

Lo, N. and Chan, S. (2025) "From Chat To Cheat: the Disruptive Effects of ChatGPT and Academic Integrity in Hong Kong Higher Education", *SN Computer Science*, Vol. 6, No. 8, Art. 993.

Mahrishi, M., Abbas, A. and Siddiqui, M. K. (2025) "Global initiatives towards regulatory frameworks for artificial intelligence (AI) in higher education", *Digital Government: Research and Practice*, Vol. 6, No. 2, pp. 1-9.

Malik, A., Khan, M.L., Hussain, K., Qadir, J. and Tarhini, A. (2025) "AI in higher education: Unveiling academicians" perspectives on teaching, research, and ethics in the age of ChatGPT", *Interactive Learning Environments*, Vol. 33, No. 3, pp. 2390–2406.

Moher, D., Liberati, A., Tetzlaff, J., and Altman, D. G. (2009) "Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement", *BMJ*, Art. 339.

Nadim, M.A. and Di Fuccio, R. (2025) "Unveiling the potential: Artificial intelligence"s negative impact on teaching and research considering ethics in higher education", *European Journal of Education*, Vol. 60, No. 1, Art. e12929.

Nguyen, K.V. (2025) "The use of generative AI tools in higher education: Ethical and pedagogical principles", *Journal of Academic Ethics*, Vol. 23, No. 3, pp. 1435–1455.

Nurtanto, M., Nawanksari, S., Sutrisno, V. L. P., Syahrudin, H., Kholifah, N., Rohmantoro, D., ... and Abi Hamid, M. (2025) "Determinants of behavioral intentions and their impact on student performance in the use of AI technology in higher education in Indonesia: A SEM-PLS analysis based on TPB, UTAUT, and TAM frameworks" *Social Sciences and Humanities Open*, Vol. 11, 101638

Oncioiu, I. and Bularca, A.R. (2025) "Artificial intelligence governance in higher education: The role of knowledge-based strategies in fostering legal awareness and ethical artificial intelligence literacy", *Societies*, Vol. 15, Art. 6, Art. 144.

Parker, L., Loper, A. J., Carter, C. W., Hayes, J. and Karakas, A. (2026) "Longitudinal insights into AI in education: Usage, ethics, and policy development in higher education", *Computers and Education Open*, Vol. 10, 100329.

Reiter, L., Jörling, M., Fuchs, C. and Böhm, R. (2025). Student (mis) use of generative AI tools for university-related tasks. *International Journal of Human–Computer Interaction*, 41(19), 12390-12403.

Richter, S., Giroux, M., Piven, I., Sima, H. and Dodd, P. (2025) "A constructivist approach to integrating AI in marketing education: Bridging theory and practice", *Journal of Marketing Education*, Vol. 47(Special Issue 2), pp. 94–111.

Schei, O.M., Møgelvang, A. and Ludvigsen, K. (2024) "Perceptions and use of AI chatbots among students in higher education: A scoping review of empirical studies", *Education Sciences*, vol. 14, No. 8, Art. 922.

Slimi, Z. and Carballido, B.V. (2023) "Navigating the ethical challenges of artificial intelligence in higher education: An analysis of seven global AI ethics policies", *TEM Journal*, Vol. 12, No. 2, pp. 590–602.

Sousa, A.E. and Cardoso, P. (2025) "Use of generative AI by higher education students", *Electronics*, 14(7), p. 1258.

Swist, T., Buckingham Shum, S. and Gulson, K. N. (2024) "Co-producing AIED ethics under lockdown: An empirical study of deliberative democracy in action", *International Journal of Artificial Intelligence in Education*, Vol. 34, No. 3, pp. 670-705.

Werdiningsih, I., Marzuki and Rusdin, D. (2024) "Balancing AI and authenticity: EFL students" experiences with ChatGPT in academic writing", *Cogent Arts and Humanities*, Vol. 11, No. 1, 2392388.

Wu, C., Zhang, H. and Carroll, J.M. (2024) "AI governance in higher education: Case studies of guidance at Big Ten universities", *Future Internet*, Vol. 16, No. 10, Art. 354.

Valdivieso, T., and González, O. 2025. ”Generative AI tools in Salvadoran higher education: Balancing equity, ethics, and knowledge management in the global south”, *Education Sciences*, Vol. 15, No. 2, Art. 214.

Yan, Y., Liu, H. and Chau, T. (2025) “A systematic review of AI ethics in education: Challenges, policy gaps, and future directions”, *Journal of Global Information Management*, Vol. 33, Art. 1.

Zawacki-Richter, O., Cefa, B., and Bai, J. Y. (2025) “Towards reproducible systematic reviews in Open, Distance, and Digital Education—An umbrella mapping review”, *Review of Education*, Vol. 13, No. 1, Art. e70031.

Bridging Science and Coaching: Towards a Science-led, Human-centred Approach to Personal and Organisational Wellbeing

Namrata R. Chowdhury
Section of Chronobiology, Faculty of Health and Medical Sciences, University of Surrey, Guildford, UK

namratarоy.chowdhury@surrey.ac.uk

Abstract: The rapid acceleration of artificial intelligence, combined with the post-Covid normalisation of remote and cross-time zone working, has reshaped how people live and work. While these shifts bring real advantages – efficiency, flexibility, global connectivity and knowledge sharing – they are also quietly eroding social interaction, diminishing work-life boundaries and reducing individual agency. The impact on health, mental wellbeing, career confidence and organisational performance is unpredictable and deeply concerning. In response, demand for coaching at personal and organisational levels is rising. Coaching offers something rare: a non-judgemental, personalised space where individuals and teams can slow down, explore interconnected areas of life and build strategies that fit their goals. Although proven impactful, coaching remains largely unregulated, with limited scientific frameworks guiding practice. This paper argues that chronobiology – the science of intrinsically generated biological rhythms and their interaction with the world around us – may offer an additional evidence base coaching has been lacking. Within this field, chrono-metabolomics studies how metabolic profiles change across the 24-hour day, and how modern disruptions such as jet lag, shift-work, meal timing and poor sleep can alter these profiles, affecting health and wellbeing. Chronobiologically informed coaching could therefore support people in understanding their chronotype, improving behavioural habits and making better lifestyle choices – not through prescription, but through awareness and informed choice. Crucially, this respects the coaching boundary: the coach's primary role is not to advise, but to equip people with knowledge to make empowered, personalised decisions. Grounded in the author's experience as both a practising coach and chrono-metabolomics researcher, this paper calls for a new conversation between the sciences and personal development – one where coaching becomes the bridge that makes biological science practical and human-centred. By mapping chronobiology research alongside the real-world challenges individuals bring to coaching sessions, this conceptual-review paper offers a starting framework for both communities to build upon together.

Keywords: Chronobiology, Chrono-metabolomics, Coaching, Circadian health, Wellbeing, Human-centred leadership

1. Introduction

The COVID-19 pandemic led organisations to rapidly adapt to remote and hybrid working practices. This provided greater flexibility, which in turn increased efficiency in how people worked and communicated around the world. People began working across time zones through platforms such as Zoom and Microsoft Teams. This led to frequent travel across time zones to build and maintain in-person connections. The result has been greater global connectivity, knowledge sharing and flexibility at both the individual and organisational levels.

Now, fast forward a few years, and we are dealing with another crisis or blessing, in the form of the rapidly evolving field of artificial intelligence (AI). AI has made many aspects of work more efficient, providing external perspectives, acting as a critique of our work and taking over repetitive tasks. However, these benefits may come at a cost, including reduced human interaction and a decreased reliance on personal agency. With these rapid changes in both personal and workplace culture, efforts are rightly being made at the organisational level to keep humankind adaptable and connected. Yet the evolving AI landscape is affecting individuals and organisations faster than previously predicted, creating challenges ranging from career uncertainty to impacts on personal wellbeing.

A growing evidence base suggests that coaching can positively influence wellbeing, resilience, performance and goal attainment, although outcomes vary according to context, coaching approach and the quality of the coaching relationship. Meta-analyses report consistent positive effects on performance, wellbeing, coping, work attitudes and goal-directed self-regulation (Theeboom *et al*., 2014; Jones *et al*., 2016; Athanasopoulou and Dopson, 2018). A first randomised controlled trial using professional external coaches found that coaching enhanced goal attainment, resilience and workplace wellbeing while reducing depression and stress (Grant *et al*., 2009). The quality of the relationship between coach and client appears to be an important factor in these gains (Graßmann *et al*., 2020). Consistent with previous meta-analyses, Cannon-Bowers *et al.* (2023) found that organisational coaching has a positive effect on workplace outcomes. The authors highlighted several priorities for future research, including clearer specification of the coaching approach, the expected and targeted outcomes, coaches' credentials, and the mechanisms of action through which coaching produces its effects. Despite this evidence, and although some tools and techniques are in wide use, the coaching industry as a whole remains largely unregulated and is often perceived as lacking a strong scientific foundation.

This conceptual paper is written from the perspective of someone who lives in two contrasting worlds: a practising coach and a chrono-metabolomics researcher. Scientific disciplines often generate highly specialised knowledge, whereas coaching focuses on integrating multiple dimensions of human experience. Both perspectives provide valuable insights, but they typically operate at different levels of analysis. The argument presented here is that, in a rapidly changing world driven by AI, there is an increasing need for adaptability, fluidity and interdisciplinary human-centred communication, where different disciplines can learn from and benefit one another.

The intention of this paper is to i. introduce coaching and how it supports individuals, ii. to introduce a scientific field – chronobiology, and iii. begin building a bridge between these two worlds. This is offered not as a revolutionary or groundbreaking claim, but as a small step towards finding a common language that allows each field to inform and support the other. In doing so, it speaks directly to the question at the heart of this mini-track: what it means to remain human in organisations reshaped by AI, by relentless targets and by the expectation of constant availability.

The contribution of this paper is not to propose a new coaching methodology, nor to present new chronobiological findings. Rather, it proposes a conceptual framework through which chronobiological knowledge may be translated into personalised reflection and behaviour change through coaching conversations. In doing so, it seeks to establish a common language between two disciplines that rarely interact despite addressing many of the same human challenges. The proposed framework in this paper awaits empirical testing and is not yet an evidence-based intervention.

2. What is Coaching?

International Coaching Federation (ICF) defines coaching as "Partnering with clients in a thought-provoking and creative process that inspires them to maximise their personal and professional potential." Although several definitions exist for coaching, there is considerable overlap with other interventions such as mentoring and counselling (Passmore *et al*., 2013). Coaching draws on a range of psychological approaches, including positive psychology (Theeboom *et al*., 2014), and covers various approaches and models. Common examples include the four-step GROW model (Goal, Reality, Options and Way Forward) (Grant, 2011), cognitive behavioural coaching (Neenan and Palmer, 2013; Ducharme, 2004), and Appreciative Inquiry (Cooperrider *et al*., 2005).

Coaching provides a safe and non-judgemental space in which individuals or teams can explore challenges, reflect on their experiences and consider future actions. It offers an opportunity to slow down, gain perspective and develop greater self-awareness. Importantly, the coach does not primarily advise, diagnose or prescribe solutions, but facilitates reflection through questioning, listening, paraphrasing and appropriately challenging patterns of thinking, enabling clients to develop greater self-awareness and identify actions that are meaningfully their own (Deiorio and Hammoud, 2017).

A typical coaching journey may begin with a discovery session, during which the coach and client determine whether they are a suitable fit to work together. Agreements are made regarding expectations, boundaries and the structure of future sessions. In the initial sessions, the coach and client often identify the key areas of life or work that the client would like to develop. This may be facilitated through coaching tools, although tools are not always necessary.

One commonly used tool is the Wheel-of-Life, which encourages individuals to examine their lives holistically across multiple domains, such as career, relationships, personal development, physical wellbeing, environment and finances. The client assesses their current level of satisfaction in each area and compares it with where they would ideally like to be. Areas showing the largest discrepancy may become priorities for coaching, with the intention of identifying opportunities for growth and gradually reducing the gap between the current and desired state. Based on these reflections, goals may then be developed using the SMART framework: Specific, Measurable, Achievable, Relevant and Time-bound, helping to translate broad aspirations into actionable steps.

In subsequent sessions, the structure often becomes more fluid and responsive to the needs of the client. Depending on what the client brings, a coach may work at different levels from practical environment and behaviour through to capabilities, values and identity using tools such as values exercises, visualisation or future-self work to explore these dimensions.

The COM-B model (Michie *et al*., 2011) (Figure 1) proposes that any behaviour (B) requires three interacting components: capability (C), opportunity (O) and motivation (M). Therefore, behaviour change requires modification of at least one of these components, although the component or combination of components

requiring change will depend on the behaviour and its context. Capability refers to the psychological and physical ability to perform a behaviour, including factors such as knowledge, mental skills, strength and stamina. Opportunity includes external factors that enable or prompt a behaviour, including the physical environment, such as time and resources, and the social environment. Motivation refers to the internal processes that enable, energise or inhibit a behaviour, including both conscious decision-making and more automatic processes such as habits and emotional responses.

These components interact dynamically with one another and with behaviour, creating feedback loops that may support or hinder behaviour change. It is this behavioural lens that the present paper uses to integrate chronobiology, since it is at the practical level of everyday conditions and habits that chronobiology has most directly to offer. From this perspective, changes in capability, opportunity and/or motivation may create more supportive conditions for sustainable behaviour change, while chronobiology may add an important temporal dimension by considering how these conditions vary across the 24-hour day.

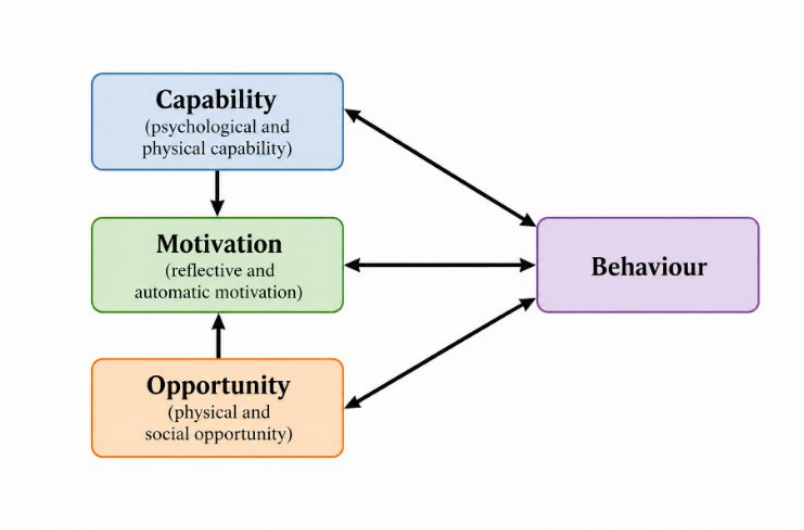


Figure 1: The COM-B model of behaviour (after Michie et al., 2011), in which capability, opportunity and motivation interact to influence behaviour

Coaching may provide a particularly suitable mechanism for translating chronobiological knowledge into practice because it already operates through personalised reflection, behaviour exploration and goal setting. Unlike population-level interventions, coaching focuses on the individual/small-group level specific circumstances, constraints and motivations. As such, it offers a means through which scientific knowledge can be translated into personalised reflection and behaviour change without removing the individual's autonomy and choice. This is particularly relevant for chronobiology, where evidence is often generated at the population level but behavioural implementation ultimately occurs at the level of the individual.

3. Where Does Chronobiology fit Into This?

AI-enabled workplaces increasingly operate across time zones, facilitate asynchronous communication and blur boundaries between work and rest. As a consequence, questions of biological timing, recovery and adaptation become increasingly relevant to both individuals and organisations. The next question is how science – and in this case chronobiology – fits into all of this. Before answering, it is helpful to set the coaching perspective aside for a moment and explain chronobiology from a researcher's point of view.

3.1 The Circadian System and Chronotype

Every nucleated cell in the human body has a clock. A central pacemaker in the suprachiasmatic nuclei (SCN) of the hypothalamus coordinates a network of peripheral clocks, generating rhythms with a period close to 24 hours – known as circadian rhythms (from the Latin *circa* meaning "about" and *diem* meaning "day"). These rhythms are synchronised, or entrained, to the Earth's 24-hour rotation on its axis by external time cues, known as 'zeitgebers' (Figure 2). The most powerful of these is the light-dark cycle, which signals the SCN through a dedicated neural pathway from the retina. Besides the light-dark cycle, meal-timing and physical activity also play vital roles as time-givers (Blume *et al*., 2019). The endogenous melatonin rhythm is a reliable phase marker

of this central clock (Lewy *et al*., 1999). When internal time and external time cues align, physiology runs smoothly; when they do not, the cost accumulates.

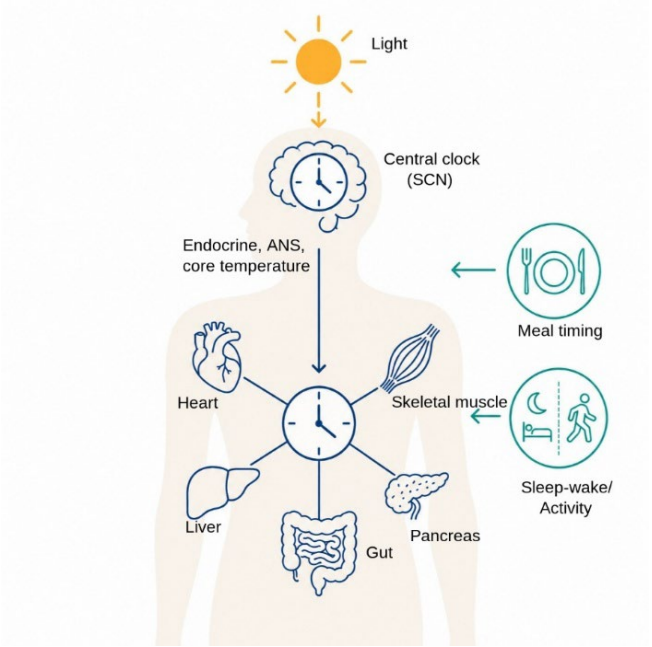


Figure 2: Hierarchical organisation of the human circadian timing system. Light is the principal zeitgeber, entraining the central clock in the SCN. The SCN in turn synchronises self-sustaining peripheral clocks throughout the body, such as those in the heart, skeletal muscle, liver, pancreas and gut, through endocrine signalling, autonomic nervous system (ANS) output and rhythms in core body temperature. These peripheral oscillators are additionally entrained by behavioural cues, principally the timing of food (meal timing) and the sleep-wake/rest-activity cycle

Individuals also differ systematically in their preferred timing of sleep and activity, a trait known as 'chronotype'. This is often described as a spectrum from early 'larks' to late 'owls', with most people somewhere in between. Because social and working schedules rarely accommodate this variation, many people live with a chronic mismatch between their biological time and their social time. Wittmann *et al*. (2006) termed this 'social jetlag' and reported that later chronotypes tend to accumulate sleep debt on workdays and report greater distress, concluding that work and school schedules should accommodate chronotype where possible. For a coaching client, the experience of being 'useless before eleven' may be less a failure of discipline than a predictable feature of their biology.

3.2 Metabolism Across the 24-Hour Day

Chrono-metabolomics is a branch of chronobiology that measures the products of metabolism – metabolites – across the 24-hour day. Studies using this approach demonstrate that a substantial proportion of circulating metabolites, including lipids, acylcarnitines and amino acids, exhibit distinct 24-hour rhythms. These rhythms may arise from endogenous circadian regulation, driven by central and peripheral clocks, and/or from exogenous diurnal influences driven by behavioural and environmental cycles such as sleep/wake and feeding/fasting (Skene *et al*., 2018).

Circadian misalignment associated with shift-work has adverse cardiometabolic implications (Scheer et al., 2009). The 24-hour metabolite profiles are also altered during simulated shift-work, as demonstrated by studies comparing plasma metabolite and lipid profiles following simulated day-shift and night-shift schedules (Skene *et al*., 2018; Khan Sullivan *et al*., 2026). While circadian timing, assessed through melatonin and cortisol rhythms, shifted very little under the night-shift condition, the majority of rhythmic metabolites tracked the imposed sleep-wake and feeding-fasting cycles rather than the central clock. This indicates that, for many metabolites, behavioural timing is a strong driver of their daily rhythms. Acute sleep deprivation can likewise alter the 24-hour profiles of plasma metabolites (Davies *et al*., 2014; Honma *et al*., 2020). Emerging evidence also indicates that meal timing can influence daily metabolic rhythms, and aligning meals with the body's active daytime phase may offer supportive benefits for metabolic health (Flanagan *et al*., 2021).

3.3 Modern Disruptors of Circadian Health

The disruptions that chronobiology studies are not abstract. They are the daily reality of many people who may seek coaching including healthcare workers and nurses on rotating shifts, first responders, pilots and frequent flyers crossing time zones, and caregivers and new parents whose sleep and daily routines are broken for months or years at a time. The biological consequences of this misalignment are increasingly well documented.

In a controlled laboratory study, Scheer *et al*. (2009) showed that when participants ate and slept around 12 hours out of phase with their habitual times, leptin (a hormone involved in satiety and energy balance) fell, glucose rose despite higher insulin, the daily cortisol rhythm was reversed and blood pressure increased; several otherwise healthy participants reached postprandial glucose levels typical of a pre-diabetic state. At the epidemiological scale, Kecklund and Axelsson (2016) reviewed the wider literature and reported associations between shift work and raised risk of Type-2 Diabetes, coronary heart disease, stroke and certain cancers, alongside accidents attributable to sleep loss. Circadian disruption, is not merely a matter of feeling tired; over time it is associated with measurable changes in metabolic and cardiovascular health.

4. Building the Bridge Between Coaching and Chronobiology

In coaching practice, individuals often describe work situations, daily routines and personal circumstances that appear closely connected to factors already well understood within chronobiology. One individual may describe reduced motivation during the winter months. Another may report fatigue associated with frequent international travel. Others struggle with irregular schedules, shift-work, poor sleep or difficulty maintaining work-life balance. These experiences are often discussed in coaching as behavioural or environmental challenges, yet many of them also have biological and circadian dimensions. This observation forms the basis of the proposed bridge between coaching and chronobiology.

The intention of this paper is not to argue that coaching should become a scientific intervention, nor that chronobiology should replace coaching. It also does not propose immediate large-scale organisational policy change. Instead, the argument is that chronobiology-informed coaching may offer value at the individual or small-group level, where people can explore how biological timing, light exposure, sleep, travel patterns and work schedules may influence their daily functioning.

This approach could be developed in two complementary ways. First, coaches could be supported to recognise when evidence-based chronobiological principles may be relevant to a client's experience, while remaining within the boundaries of coaching practice. Second, chronobiology researchers and coaching practitioners could work together to develop clear, accessible and trustworthy guidance for real-life scenarios. Such guidance would not function as a prescription or cure, but as a set of evidence-informed considerations that clients may choose to explore within coaching conversations. At the same time, there is an opportunity for chronobiologists and coaching practitioners to work together to develop responsible, human-centred recommendations that support awareness, reflection and informed choice.

5. Integrating Chronobiology Within a Behaviour-change Coaching Framework

Chronobiology-informed coaching can be introduced as contextual information that helps clients reflect on the conditions shaping their energy, mood, focus and recovery. Here, the COM-B framework (Michie *et al*., 2011), which considers behaviour as influenced by capability, opportunity and motivation, is used to introduce chronobiology-informed behaviour changes. The framework has begun to be applied within the sleep domain, for example to design interventions supporting access to evidence-based therapy for insomnia (Alkhaldi *et al*., 2024), though its application to chronobiological behaviour within coaching remains unexplored to the author's knowledge.

Within this framework (Figure 3), chronobiological awareness may support 'capability' by helping clients understand how biological timing, sleep-wake, light exposure and meal timing can affect daily functioning. It may also highlight 'opportunity', by drawing attention to the environmental and social conditions that support or disrupt healthy rhythms, such as access to natural daylight, workplace lighting, home-working arrangements, seasonal change, shift schedules, time-zone changes and social timing demands. Finally, it may influence 'motivation', by helping clients connect chrono-informed habits with personally meaningful goals, such as improved wellbeing, concentration, confidence, performance or work-life balance.

At the 'behavioural' level, this may include reflection on meal timing, physical activity, light and screen exposure, travel routines, work patterns and recovery practices. None of these factors is unattainable; rather, they are

small, adjustable parts of modern working life. Explored through coaching, they promote self-awareness: discussable, customisable and, within realistic limits, adjustable.

In this approach, chronobiology provides an evidence-informed language through which the client can explore how their environment and behaviours shape their rhythms, and how those rhythms relate to their personal goals. Coaching then supports the client to identify small, context-sensitive experiments aligned with their values and circumstances.

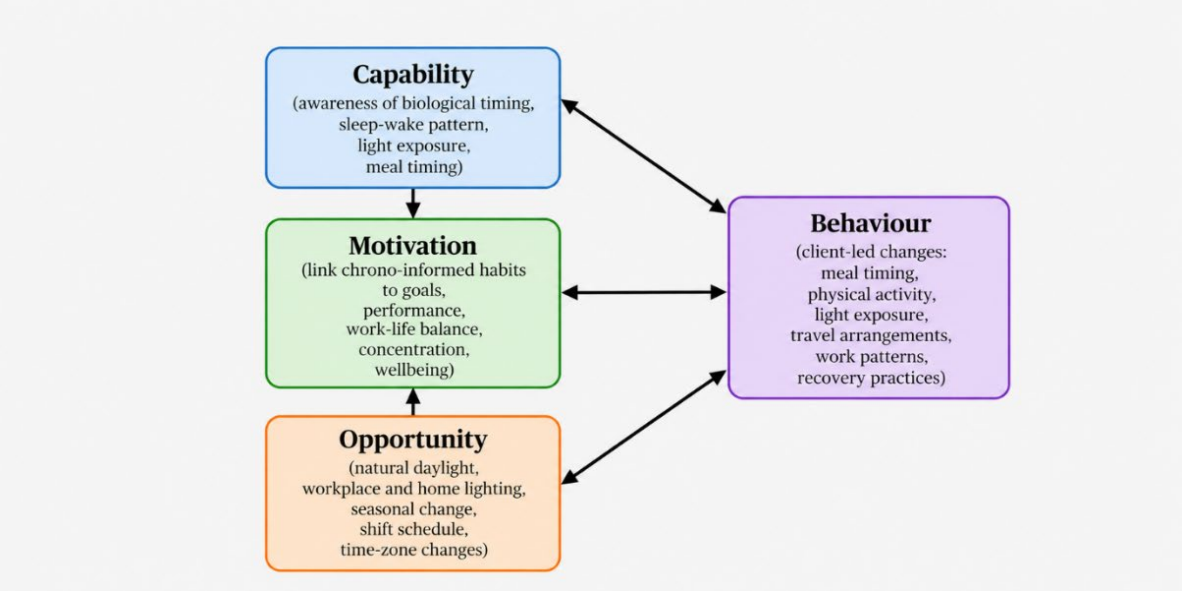


Figure 3: Chronobiological factors mapped onto the components of the COM-B model. Capability, opportunity and motivation interact to shape behaviour; chronobiology enters as contextual information the client may choose to explore

6. Illustrative Example: Low Motivation in Winter

Consider a client who reports: "I feel less motivated and productive during the winter." A traditional coaching approach might explore what has changed recently at work and personal life, what meaning they are attaching to the experience, and what they would like to be different. A chronobiology-informed perspective adds a further set of questions: in which season does this occur, and at what time-of-day is the feeling strongest? How much morning light does the person receive, and how much time do they spend outdoors? Has their sleep timing changed? The coach is simply broadening the range of questions available for exploration. The coach might, for instance, share the evidence-based observation that outdoor daylight – even on an overcast day – is substantially brighter than typical indoor lighting and plays an important role in regulating circadian rhythms, sleep and mood (Blume *et al*., 2019), thereby equipping the client to make an informed decision.

7. Towards a Practical Framework

One possible output of this interdisciplinary approach is a framework that combines coaching-based reflective questions, chronobiology-informed screening questions and, where appropriate, evidence-based considerations the client may choose to explore. Table 1 illustrates how this might look in practice.

Table 1: An illustrative framework linking common situations to coaching questions, chronobiology-informed questions and evidence-based considerations

Situation	Coaching questions	Chronobiology-informed questions	Potential chronobiology considerations
Frequent travel across time zones	Why is this work pattern important to you?	How often do you travel, and how do you adjust afterwards?	Jet lag and circadian adaptation (Giusti *et al*., 2026)
Shift-work fatigue	How is this affecting your personal goals and wellbeing?	What shift pattern do you work?	Circadian disruption, sleep timing and cardiometabolic risk (Kecklund and Axelsson, 2016)

Situation	Coaching questions	Chronobiology-informed questions	Potential chronobiology considerations
Poor energy during the day	What patterns have you noticed?	When do you sleep, eat and exercise?	Chronotype and the timing of daily behaviours (Wittmann *et al*., 2006)

The aim is not to provide medical advice or to replace existing coaching approaches. Rather, it is to create a shared language through which coaching and chronobiology can complement one another and support individuals in navigating an increasingly complex and rapidly changing world.

8. Future Research

Future research could evaluate the feasibility and effectiveness of chronobiology-informed coaching through pilot studies in populations particularly vulnerable to circadian disruption, such as shift workers, frequent travellers and remote workers operating across time zones. Such studies would help determine whether integrating chronobiological awareness into coaching conversations leads to measurable improvements in wellbeing, behaviour change or organisational outcomes.

9. Limitations

This paper is conceptual in nature and does not present empirical evidence for the effectiveness of chronobiology-informed coaching. The coaching profession encompasses a diverse range of approaches and levels of training, making generalisation difficult. Furthermore, chronobiological evidence is often derived from population-level studies and may not apply equally to every individual. Consequently, the framework proposed here should be viewed as a starting point for interdisciplinary discussion rather than a validated intervention.

10. Conclusion

Coaching provides a structured yet flexible process through which individuals can explore challenges, develop self-awareness and identify personalised actions that are meaningful within their own context. It allows people to experiment, reflect and adapt through an iterative trial-and-learning approach. Rather than applying a one-size-fits-all solution, coaching recognises that sustainable change usually emerges from personalised strategies that fit an individual's circumstances, values and goals.

From this perspective, chronobiology-informed coaching should not be viewed as a prescriptive intervention. Chronobiological knowledge can instead serve as an additional lens through which individuals better understand their behaviour, environment and daily experiences. Evidence-based considerations may then be explored collaboratively within the coaching process and adapted according to individual needs and responses. If such approaches show positive outcomes at the individual level, they may provide proof-of-concept for larger studies, organisational interventions and, eventually, workplace policies. The purpose of this paper, however, is not to advocate immediate large-scale implementation, but to encourage dialogue and exploration between disciplines that have traditionally operated separately.

The central argument is that there is a growing need for inter-disciplinary communication, collaboration and research. As work, technology and society continue to evolve rapidly, meaningful solutions are increasingly likely to emerge from the integration of diverse perspectives rather than from isolated disciplines working independently. A bottom-up approach, beginning with individuals and small-scale practical applications, may offer a realistic and human-centred pathway towards translating chronobiological knowledge into everyday practice. Through greater collaboration between coaches, researchers, organisations and individuals, it may be possible to develop approaches that are both scientifically informed and practically relevant to the challenges of modern life.

Chronobiology already has evidence-based answers for many everyday challenges – sleep, shift-work, jet lag, chronotype and meal timing – while coaching provides a personalised, human-centred mechanism for helping individuals explore and implement change. The bridge between them could be chronobiology-informed coaching.

Acknowledgements

The author thanks colleagues in the Section of Chronobiology and Metabolomics Core Facility at the University of Surrey for the supportive research environment. Particular thanks go to Professor Debra J. Skene and Dr Daan van der Veen for their mentorship and guidance in the field of chronobiology. The author is also grateful to the wider coaching community, whose empathy and dedication to human flourishing continue to inspire this work.

Ethics Declaration: This is a conceptual-review paper that draws solely on previously published, publicly available literature. No new data involving human participants or animals were collected or analysed, and ethical clearance was therefore not required for the work reported here.

AI Declaration: The author used generative AI tools to support language refinement, structural editing, and clarity of expression during preparation of this manuscript. The author takes full responsibility for the intellectual content, accuracy of references, interpretation of literature and final submitted version.

References

Alkhaldi, O., McMillan, B. and Ainsworth, J. (2024) "Using the behaviour change wheel to develop a tailored intervention to overcome general practitioners' perceived barriers to referring insomnia patients to digital therapeutic Sleepio", *BMC Health Services Research*, 24, 967. doi:10.1186/s12913-024-11384-3.

Athanasopoulou, A. and Dopson, S. (2018) "A systematic review of executive coaching outcomes: Is it the journey or the destination that matters the most?", *The Leadership Quarterly*, 29(1), pp. 70–88. doi:10.1016/j.leaqua.2017.11.004.

Blume, C., Garbazza, C. and Spitschan, M. (2019) "Effects of light on human circadian rhythms, sleep and mood", *Somnologie*, 23(3), pp. 147–156. doi:10.1007/s11818-019-00215-x.

Cannon-Bowers, J.A. *et al*. (2023) "Workplace coaching: a meta-analysis and recommendations for advancing the science of coaching", *Frontiers in Psychology*, 14, 1204166. doi:10.3389/fpsyg.2023.1204166.

Cooperrider, D.L., Whitney, D. and Stavros, J.M. (2005) *Appreciative Inquiry Handbook: The First in a Series of AI Workbooks for Leaders of Change*. Brunswick, OH: Crown Custom Publishing.

Davies, S.K. *et al*. (2014) "Effect of sleep deprivation on the human metabolome", *Proceedings of the National Academy of Sciences*, 111(29), pp. 10761–10766. doi:10.1073/pnas.1402663111.

Deiorio, N.M. and Hammoud, M.M. (2017) *Coaching in Medical Education: A Faculty Handbook*. Chicago, IL: American Medical Association.

Ducharme, M.J. (2004) "The cognitive-behavioral approach to executive coaching", *Consulting Psychology Journal: Practice and Research*, 56(4), pp. 214–224. doi:10.1037/1065-9293.56.4.214.

Flanagan, A. *et al*. (2021) "Chrono-nutrition: From molecular and neuronal mechanisms to human epidemiology and timed feeding patterns", *Journal of Neurochemistry*, 157(1), pp. 53–72. doi:10.1111/jnc.15246.

Giusti, G. *et al*. (2026) "Is academic mobility good for you? A case report on the effects of frequent, two-weekly travel across one time zone on sleep-wake indices", *Chronobiology International*, 43(7), pp. 996–1002. doi:10.1080/07420528.2026.2646573.

Grant, A.M., Curtayne, L. and Burton, G. (2009) "Executive coaching enhances goal attainment, resilience and workplace well-being: A randomised controlled study", *The Journal of Positive Psychology*, 4(5), pp. 396–407. doi:10.1080/17439760902992456.

Grant, A.M. (2011) "Is it time to REGROW the GROW model? Issues related to teaching coaching session structures", *The Coaching Psychologist*, 7(2), pp. 118–126.

Graßmann, C., Schölmerich, F. and Schermuly, C.C. (2020) "The relationship between working alliance and client outcomes in coaching: A meta-analysis", *Human Relations*, 73(1), pp. 35–58. doi:10.1177/0018726718819725.

Honma, A. *et al*. (2020) "Effect of acute total sleep deprivation on plasma melatonin, cortisol and metabolite rhythms in females", *European Journal of Neuroscience*, 51(1), pp. 366–378. doi:10.1111/ejn.14411.

Jones, R.J., Woods, S.A. and Guillaume, Y.R.F. (2016) "The effectiveness of workplace coaching: A meta-analysis of learning and performance outcomes from coaching", *Journal of Occupational and Organizational Psychology*, 89(2), pp. 249–277. doi:10.1111/joop.12119.

Kecklund, G. and Axelsson, J. (2016) "Health consequences of shift work and insufficient sleep", *BMJ*, 355, i5210. doi:10.1136/bmj.i5210.

Khan Sullivan, A.M. *et al*. (2026) "Diurnal Variation and Impairment of Postprandial Glucose-Insulin Responses and Lipid Rhythms in Simulated Shift Work", *Nutrition Bulletin*, 51(3), pp. 353–365. doi:10.1111/nbu.70060.

Lewy, A.J., Cutler, N.L. and Sack, R.L. (1999) "The endogenous melatonin profile as a marker for circadian phase position", *Journal of Biological Rhythms*, 14(3), pp. 227–236. doi:10.1177/074873099129000641.

Michie, S., van Stralen, M.M. and West, R. (2011) "The behaviour change wheel: a new method for characterising and designing behaviour change interventions", *Implementation Science*, 6, 42. doi:10.1186/1748-5908-6-42.

Neenan, M. and Dryden, W. (2013) *Life Coaching: A Cognitive Behavioural Approach*. London: Routledge.

Passmore, J., Peterson, D.B. and Freire, T. (2013) "The psychology of coaching and mentoring", in Passmore, J., Peterson, D.B. and Freire, T. (eds.) *The Wiley-Blackwell Handbook of the Psychology of Coaching and Mentoring*. Chichester: Wiley-Blackwell, pp. 1–11. doi:10.1002/9781118326459.ch1.

Scheer, F.A.J.L. *et al*. (2009) "Adverse metabolic and cardiovascular consequences of circadian misalignment", *Proceedings of the National Academy of Sciences*, 106(11), pp. 4453–4458. doi:10.1073/pnas.0808180106.

Skene, D.J. *et al*. (2018) "Separation of circadian- and behavior-driven metabolite rhythms in humans provides a window on peripheral oscillators and metabolism", *Proceedings of the National Academy of Sciences*, 115(30), pp. 7825–7830. doi:10.1073/pnas.1801183115.

Theeboom, T., Beersma, B. and van Vianen, A.E.M. (2014) "Does coaching work? A meta-analysis on the effects of coaching on individual level outcomes in an organizational context", *The Journal of Positive Psychology*, 9(1), pp. 1–18. doi:10.1080/17439760.2013.837499.

Wittmann, M. *et al*. (2006) "Social jetlag: Misalignment of biological and social time", *Chronobiology International*, 23(1–2), pp. 497–509. doi:10.1080/07420520500545979.

International Academic Mobility and Human Capital Development: Evidence from Erasmus Students in an European Higher Education Institution

Vânia Costa[1], Raquel Pereira[2] and Gabriela Ribeiro[2]
[1]Applied Management Research Unit (UNIAG), School of Hospitality and Tourism, Polytechnic University of Cávado and Ave (IPCA), CiTUR, GOVCOPP-UA, Portugal
[2]Applied Management Research Unit (UNIAG), School of Hospitality and Tourism, Polytechnic University of Cávado and Ave (IPCA), CiTUR, Portugal
[3]Polytechnic University of Cávado and Ave (IPCA), Portugal

vcosta@ipca.pt
rpereira@ipca.pt
gabrielaviides@gmail.com

Abstract: International academic mobility has become a strategic instrument for higher education institutions seeking to strengthen internationalisation, enhance student development, and improve institutional competitiveness. Beyond its educational dimension, Erasmus mobility also generates tourism flows, positioning international students as academic tourists who contribute to the economic, cultural, and social development of host destinations. Despite its growing relevance, limited research has examined international mobility simultaneously from the perspectives of higher education management, human capital development, and academic tourism. This study investigates how Erasmus students' motivations, mobility experiences, and competency development influence overall satisfaction and destination loyalty. A quantitative research design was adopted using survey data collected from 74 Erasmus students who completed a mobility period at the Pan-European University in Bratislava, Slovakia. Data were analysed through descriptive statistics, reliability analysis, correlation analysis, and regression analysis. The findings indicate that students' motivations positively influence the quality of the mobility experience, which subsequently contributes to higher levels of satisfaction. Participation in the Erasmus programme promotes the development of important transversal competencies, particularly communication, intercultural, social, and language skills, reinforcing the contribution of international mobility to human capital development. The results also demonstrate that satisfied students are more likely to recommend the host destination, although satisfaction does not significantly influence revisit intention. This study contributes to the literature by integrating perspectives from higher education management, academic tourism, and human capital theory. It highlights the strategic role of international mobility programmes in enhancing student competencies, strengthening institutional attractiveness, and promoting host destinations through students acting as informal ambassadors. The findings provide practical implications for higher education institutions and destination managers seeking to design mobility strategies that maximise educational, institutional, and territorial value creation.

Keywords: International academic mobility, Human capital development, Academic tourism, Erasmus programme, Higher education management, Destination loyalty

1. Introduction

International academic mobility has become a strategic dimension of higher education internationalisation, fostering educational cooperation, intercultural dialogue, and institutional competitiveness. Globalisation has accelerated the movement of students, knowledge, and educational services across borders, making study-abroad programmes an increasingly important component of higher education systems (Gallarza et al., 2024; Pinto et al., 2021; Tang, 2021; Tomasi et al., 2020; Unurlu, 2021). Consequently, international mobility is widely recognised as an effective mechanism for developing intercultural competencies, enhancing employability, and promoting personal and academic growth (Masri, 2017; Rodríguez & Martínez-Roget, 2020).

Beyond its educational dimension, international mobility also generates significant economic, social, and cultural impacts on host destinations. International students consume accommodation, transport, gastronomy, leisure, and cultural services, contributing to local economies while participating actively in the social life of host communities (Pereira et al., 2020). This dual role has led to increasing recognition of students as a specific segment of academic tourists, combining educational objectives with tourism experiences (Unurlu, 2021; Martínez-Roget & Rodríguez, 2021).

Within Europe, the Erasmus Programme represents one of the most successful international mobility initiatives, promoting academic cooperation and cultural exchange across higher education institutions. During their mobility period, students engage not only in academic activities but also in tourism-related experiences,

influencing destination image through their perceptions, recommendations, and interactions with local communities. Nevertheless, research has primarily examined Erasmus mobility from educational or institutional perspectives, while the tourism dimension of these experiences remains comparatively underexplored.

At the same time, international mobility constitutes an important mechanism for human capital development. Participation in mobility programmes enhances communication, language proficiency, intercultural awareness, adaptability, teamwork, and problem-solving skills, all of which are increasingly valued in global labour markets (Bilecen & Van Mol, 2017; Filipe et al., 2021; Tomasi et al., 2020). Consequently, mobility programmes create value not only for students but also for higher education institutions seeking to strengthen their international attractiveness and graduate employability.

Although previous studies have examined international academic mobility from educational, tourism or internationalisation perspectives, two important research gaps remain. First, Erasmus students have rarely been analysed simultaneously as academic tourists and contributors to destination development. Second, limited research has integrated Human Capital Development and Academic Tourism within a single analytical framework, despite the growing recognition that international mobility simultaneously generates educational, institutional and territorial value. Addressing these gaps contributes to a more comprehensive understanding of Erasmus mobility as both a higher education strategy and a driver of destination competitiveness.

This study addresses these gaps by examining Erasmus students at the Pan-European University in Bratislava, Slovakia, from an integrated perspective combining higher education management, human capital development, and academic tourism. Specifically, it investigates how students' motivations influence their mobility experience, how this experience contributes to competency development and overall satisfaction, and how satisfaction affects destination loyalty through recommendation and revisit intentions.

The study makes three contributions to the literature. First, it integrates perspectives from higher education management, human capital theory, and academic tourism within a single analytical framework. Second, it provides empirical evidence on the competencies developed through Erasmus mobility and their relationship with students' experiences and satisfaction. Third, it offers practical implications for higher education institutions and destination managers seeking to maximise the educational, institutional, and territorial value generated by international mobility programmes.

The remainder of the paper is organised as follows. Section 2 reviews the relevant literature and develops the research hypotheses. Section 3 describes the methodology, Section 4 presents the empirical findings, and Section 5 discusses the main conclusions and implications.

2. Literature Review

2.1 Academic Mobility

International academic mobility has become a strategic pillar of higher education internationalisation, enabling universities to strengthen international cooperation, improve institutional attractiveness, and enhance graduate employability. Within Europe, the Erasmus Programme represents one of the most successful mobility initiatives, promoting academic exchange while fostering intercultural understanding and European integration (European Commission, 2020).

Human Capital Theory considers education, training and international experience as investments that enhance individuals' productivity, employability and long-term economic performance (Becker, 1964). Within higher education, international academic mobility represents an important mechanism for developing transversal competencies, intercultural awareness, adaptability and global citizenship, all of which are recognised components of contemporary human capital (OECD, 2017). Consequently, Erasmus mobility should be understood not only as an internationalisation strategy but also as a strategic investment in the development of human capital for both individuals and higher education institutions.

Previous research identifies academic, personal, and professional development as the main motivations for participating in international mobility programmes (Masri, 2017; Надирова, 2018; Lesjak et al., 2015). Students seek opportunities to improve language proficiency, experience different educational systems, expand international networks, and enhance future career prospects. Beyond academic learning, mobility experiences contribute to the development of transversal competencies, including intercultural communication, teamwork, adaptability, independence, and critical thinking (Rodríguez et al., 2013; Bilecen & Van Mol, 2017; Tomasi et al., 2020; Filipe et al., 2021).

From a higher education management perspective, these competencies represent important forms of human capital. Universities increasingly recognise mobility programmes as strategic investments that improve graduate employability, institutional reputation, and international competitiveness (Scott, 2015). Consequently, international mobility should be understood not only as an educational activity but also as a mechanism for creating value for students, higher education institutions, and society.

2.2 Student Mobility and Academic Tourism

The idea of academic tourism relates to travel driven mainly by educational goals that also includes activities like cultural exploration, leisure pursuits, and temporary stays in a host location. Compared to traditional tourists, academic tourists usually stay longer in places and interact more extensively with local communities.

Students involved in international mobility programmes often exhibit tourism behaviours, such as visiting cultural sites, travelling within the host country, and engaging in leisure activities. As a result, they can have significant economic and cultural impacts on host destinations. Analysing international students as academic tourists thus offers an interdisciplinary view that connects tourism studies with higher education research.

Tourism research emphasises the importance of motivation in influencing travel behaviour. According to the push–pull framework introduced by Crompton (1979), individuals are pushed to travel by internal motivations and pulled by the appealing features of specific destinations. Push factors include internal motivations like the desire to escape, learn, or develop personally, while pull factors are related to destination traits such as cultural attractions, infrastructure, and reputation (Lee, 2009; Nikjoo & Katabi, 2015).

This framework has also been widely used in studies of academic tourism and student mobility (Filipe et al., 2020; Martínez-Roget & Rodríguez, 2020; Deyà-Tortella et al., 2020; Unurlu, 2020). In this context, push factors include students' motivations for gaining international experience, exploring cultures, and learning languages, while pull factors refer to the features of the host destination or educational institution.

International mobility is therefore closely linked with tourism experiences undertaken during the stay abroad. These experiences shape students' perceptions of the destination and may influence their satisfaction levels. In tourism research, satisfaction is a key outcome of travel experiences and is commonly associated with behavioural intentions such as destination recommendation and revisit intention (Deyà-Tortella et al., 2020; Preko et al., 2018).

2.3 Satisfaction and Destination Loyalty

Satisfaction is widely recognised as one of the strongest predictors of destination loyalty. Tourism literature consistently demonstrates that positive travel experiences increase visitors' willingness to recommend destinations and, in some circumstances, revisit them (Yoon & Uysal, 2005).

This relationship has also been examined in academic tourism. Students who report positive mobility experiences generally express higher levels of satisfaction and stronger recommendation intentions towards both the host university and destination (Deyà-Tortella et al., 2021; Filipe et al., 2021). However, revisit intention appears to be less consistent among international students because future travel decisions are frequently influenced by financial resources, geographical distance, professional opportunities, or the desire to experience new destinations.

Although previous studies have explored motivations, satisfaction and destination loyalty separately (Lesjak et al., 2015; Deyà-Tortella et al., 2021; Filipe et al., 2021; Martínez-Roget & Rodríguez, 2021), relatively few have integrated these constructs with Human Capital Development within a single analytical framework. Addressing this gap provides a broader understanding of international academic mobility as a process simultaneously generating educational, institutional and tourism-related outcomes.

3. Methodology

3.1 Research Design and Conceptual Model

This study adopts a quantitative research design to examine the relationships between international academic mobility, human capital development, student satisfaction, and destination loyalty. The conceptual framework assumes that students' motivations influence the quality of their mobility experience, which subsequently affects satisfaction and behavioural intentions towards the host destination. Based on previous research on international academic mobility, academic tourism, and destination loyalty (Lesjak et al., 2015; Martínez-Roget & Rodríguez, 2021; Filipe et al., 2021), four research hypotheses were formulated:

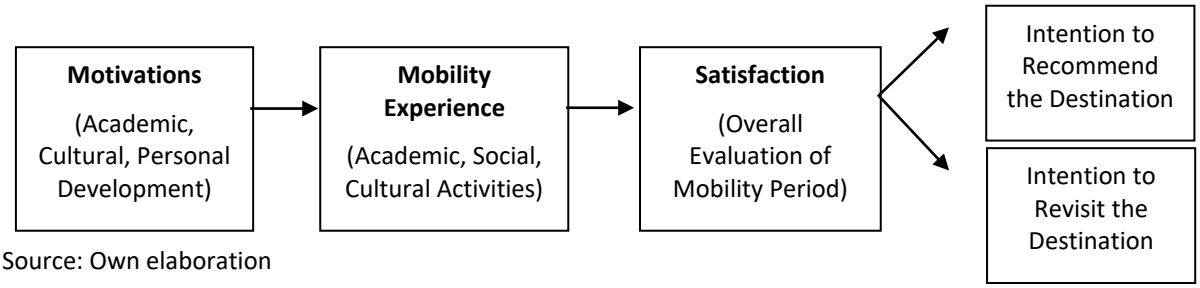
H1: Students' motivations positively influence the quality of the mobility experience.

H2: The mobility experience positively influences students' overall satisfaction.

H3: Students' satisfaction positively influences their intention to recommend the host destination.

H4: Students' satisfaction positively influences their intention to revisit the host destination.

Based on these relationships, the conceptual model proposed in this study assumes a sequential relationship between motivations, mobility experiences, satisfaction, and destination loyalty outcomes. Figure 1 illustrates the conceptual framework proposed in this study. The model assumes that students' motivations influence the quality of their mobility experience. In turn, the perceived mobility experience affects overall satisfaction, which subsequently influences destination loyalty outcomes, namely the intention to recommend the destination and the intention to revisit it in the future.



Source: Own elaboration

Figure 1: Conceptual Model of Erasmus Mobility Experience and Destination Loyalty

3.2 Questionnaire Design

Data were collected using a structured questionnaire developed from previous studies on international academic mobility, academic tourism, tourist behaviour, satisfaction, destination loyalty, and human capital development (Lesjak et al., 2015; Deyà-Tortella et al., 2021; Filipe et al., 2021). The questionnaire comprised four sections i) respondents' socio-demographic and academic characteristics; ii) motivations for participating in the Erasmus programme; iii) mobility experiences, tourism behaviour, and competencies developed during the mobility period; iv) satisfaction and destination loyalty. All attitudinal items were measured using five-point Likert scales ranging from 1 ("Strongly disagree") to 5 ("Strongly agree")**.**

3.3 Sample and Data Collection

The empirical study was conducted at the Pan-European University in Bratislava, Slovakia. The target population comprised 317 incoming Erasmus students who completed a mobility period between the academic years 2012/2013 and 2021/2022. Data were collected online between 9 June and 6 July 2022 through the University's International Relations Office. Participation was voluntary, anonymous, and confidential. A total of 74 valid questionnaires were obtained, corresponding to a response rate of 23.3% (Table 1)**.**

Table 1: Sample datasheet

Study population	**International students of Pan-European University (from 2012/2013 and 2021/2022)**
Application location	Pan-European University, Bratislava, Slovakia
Population dimension	317 incoming students
Sample dimension	74 respondents
Sample period	June 9th to July 6th of 2022
Data collection instrument	Google Forms online survey
Type of questionnaire	Survey by questionnaire
Error	10%
Confidence level	95% with a z-value of 1.96
Response rate	23,3%

Source: Own elaboration

Although relatively small, the sample is appropriate for the exploratory objectives of this study and is comparable to previous research on academic tourism and international student mobility (Deyà-Tortella et al., 2021; Filipe et al., 2021).

3.4 Data Analysis and Variables

The analysis concentrated on descriptive statistics and comparative interpretation of the results. Due to the limited number of items used to measure some constructs, exploratory factor analysis was deemed inappropriate for this study. This approach provides a clear understanding of students' perceptions and experiences while maintaining methodological consistency with the dataset's characteristics. Therefore, the data were analysed using descriptive statistics, correlation analysis, and regression analysis.

Data analysis primarily relied on descriptive statistics to characterise the sample and summarise respondents' perceptions of their mobility experience. Frequencies, percentages, and mean scores were calculated to identify the most significant motivations, experiences, and perceived outcomes of participation in the Erasmus programme. For variable sets with an insufficient number of items, exploratory factor analysis was not conducted. In cases where item coverage was sufficient (motivations, skills development, and satisfaction), exploratory factor analysis (EFA) was employed as a heuristic, data-reduction technique to explore dominant underlying dimensions within this specific Erasmus context, rather than to confirm latent constructs. Sampling adequacy and factorability were assessed using the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's test of sphericity.

4. Results and Discussion

This section presents the empirical results of the study, including descriptive statistics, correlation analysis and regression analysis used to test the proposed hypotheses.

4.1 Sociodemographic and Academic Profile

The sample comprised 74 Erasmus students, predominantly female (64.9%), aged between 22 and 30 years (72.9%). Participants represented 21 nationalities, with Italy (27%), Spain (14.9%) and France (9.5%) accounting for the largest groups. Most respondents were undergraduate students (78.4%) who completed a study mobility period during one academic semester. The majority were enrolled in Law, Media, Economics, Informatics and International Relations programmes (Table 2).

Table 2: Sociodemographic profile

Gender	**N**	**Total %**		**Country of Origin of Erasmus Students**	**N**	**Total %**
Female	48	64.9%		Albania	3	4%
Male	26	35.1%		Austria	1	1.4%
				Azerbaijan	3	4%
Age	**N**	**Total %**		Cambodia	1	1.4%
19-21	12	16.2%		France	7	9.5%
22-25	28	37.8%		Georgia	1	1.4%
26-30	26	35.1%		Germany	1	1.4%
31-35	7	9.5%		Greece	3	4%
>35	1	1.4%		Indonesia	2	2.7%
				Italy	20	27%
Students' Employment Status	**N**	**Total %**		Kyrgyzstan	3	4%
Employed by another	23	31%		Laos	1	1.4%
Self-employed	5	6.8%		Latvia	1	1.4%
Unemployed	7	9.5%		Malaysia	5	6.8%
Student	27	36.4%		México	1	1.4%
Student worker	11	14.9%		Montenegro	1	1.4%
European volunteer	1	1.4%		Peru	2	2.7%
				Portugal	4	5.4%

Gender	N	Total %		Country of Origin of Erasmus Students	N	Total %
				Spain	11	14.9%
				Taiwan	1	1.4%
				Turkey	2	2.7%

Source: Own elaboration

4.2 Mobility Motivations and Competency Development

Students' motivations for participating in the Erasmus programme were primarily related to personal enrichment and international experience. The most frequently reported motivations were the opportunity to gain new experiences and knowledge (55.4%), travel and leisure opportunities (48.6%), and living in another country (44.6%). Academic prestige, access to higher education and developing an international career were considerably less relevant (Table 3). These findings confirm previous research suggesting that international mobility is mainly driven by cultural, experiential and personal development motivations rather than purely academic considerations (Lesjak et al., 2015; Masri, 2017).

Participation in the Erasmus programme also contributed to the development of important transversal competencies. Communication skills (40.0%), social skills (42.9%), intercultural competences (34.3%) and language practice (32.9%) were the competencies most frequently identified by respondents (Table 4). These findings reinforce the contribution of international mobility to human capital development by enhancing competencies that are increasingly valued in international labour markets (Bilecen & Van Mol, 2017; Filipe et al., 2021; Tomasi et al., 2020).

Table 3: Motivating factors for Erasmus Mobility

Motivating factors	N	Total %	% Cases
MF1- Travel and leisure opportunities	36	16.2%	48.6%
MF2- Exit the comfort zone/escape	21	9.5%	28.4%
MF3- Curiosity	5	2.3%	6.8%
MF4- Opportunity to have new experiences/knowledge	41	18.5%	55.4%
MF5- Meet new people	18	8.1%	24.3%
MF6- To learn or improve a language	25	11.3%	33.8%
MF7- Prestige	0	0%	0%
MF8- Experience of living in another country	33	14.9%	44.6%
MF9- Learn about different cultures	11	5.0%	14.9%
MF10- Experience different educational systems	6	2.7%	8.1%
MF11- Get a special academic education / differentiated training	3	1.4%	4.1%
MF12- Access to higher education	0	0%	0%
MF13- Develop the academic career	2	0.9%	2.7%
MF14- Increase employment perspective	3	1.4%	4.1%
MF15- Improve the curriculum	10	4.5%	13.5%
MF16- Developing an international career	0	0%	0%
MF17- Opportunity to establish international contact networks	4	1.8%	5.4%
MF18- Influence of social context (friends/colleagues/relatives/teachers)	1	0.5%	1.4%
MF19- Availability of scholarship	3	1.4%	4.1%

Source: Own elaboration

Table 4: Skills Developed during Erasmus Mobility

Skills developed	N	Total %	% Cases
SK1- Intercultural competences	24	11,4%	34,3%
SK2- Communication skills	28	13,3%	40,0%
SK3- Social skills	30	14,3%	42,9%
SK4- Practice a new language	23	11,0%	32,9%
SK5-Tolerance	3	1,4%	4,3%
SK6-Money management	12	5,7%	17,1%
SK7-Time management	3	1,4%	4,3%
SK8-Organization skills	8	3,8%	11,4%
SK9-Decision-making skills	7	3,3%	10,0%
SK10-Conflict resolution skills	1	0,5%	1,4%
SK11-Problem-solving skills	14	6,7%	20,0%
SK12-Creativity	2	1,0%	2,9%
SK13-Personal identity development	16	7,6%	22,9%
SK14-Emotional development	8	3,8%	11,4%
SK15-Development of critical thinking	4	1,9%	5,7%
SK16-Develop observation skills	1	0,5%	1,4%
SK17-Teamwork skills	4	1,9%	5,7%
SK18-Increased confidence	11	5,2%	15,7%
SK19-Multifaceted vision of the world	11	5,2%	15,7%

Source: Own elaboration

4.3 Mobility Experience, Satisfaction and Destination Loyalty

The results indicate that Erasmus students actively engaged in tourism activities during their mobility period. More than half of the respondents (58%) considered themselves tourists while studying abroad. Most travelled extensively within Slovakia and neighbouring countries, particularly Austria, Hungary and the Czech Republic, while also participating in nightlife, cultural events, gastronomy and city tours. These findings reinforce the concept of international students as academic tourists who combine educational objectives with tourism experiences.

Overall satisfaction with the mobility experience was high. Students expressed particularly positive evaluations regarding transportation, safety, the destination itself, social integration, accommodation and the university environment. Reliability analysis demonstrated good internal consistency of the satisfaction scale (Cronbach's $\alpha = 0.86$), allowing the construction of a composite satisfaction index with a mean score of 3.99 (Table 5).

Destination loyalty results indicate that 93.2% of respondents would recommend Bratislava as a tourism destination, while 75.7% would recommend the host university. These findings suggest that positive mobility experiences strengthen destination attractiveness through students acting as informal ambassadors.

Table 5: Descriptive Statistics of the Satisfaction Index

Variable	Mean	Mean (S.D.)	Min	Max
Satisfaction with mobility experience	3.99	0.61	2.17	5.00

Source: Own elaboration

The findings demonstrate that Erasmus mobility extends beyond its educational function by contributing significantly to Human Capital Development. Participants reported substantial improvements in communication, intercultural interaction, language proficiency and social competencies, confirming that international mobility fosters the development of transversal skills increasingly valued in contemporary labour markets. These findings are consistent with Human Capital Theory (Becker, 1964), which considers education

and international experience as strategic investments that enhance individual productivity, employability and long-term career prospects. They also reinforce previous research highlighting Erasmus mobility as an important mechanism for developing intercultural competence, adaptability and global citizenship (Bilecen & Van Mol, 2017; Filipe et al., 2021). From a higher education management perspective, these competencies strengthen institutional internationalisation strategies while enhancing graduates' preparedness for increasingly global and multicultural working environments.

4.4 Correlation and Hypothesis Testing

Correlation analysis revealed a significant positive association between mobility experience and recommendation intention ($r = 0.30$, $p < 0.05$), whereas no meaningful relationship was found with revisit intention (Table 6).

Regression analysis supports the proposed conceptual model (Table 7 and Table 8). Students' motivations positively influenced the quality of the mobility experience (H1), which in turn contributed to higher levels of satisfaction (H2). Satisfaction significantly increased students' intention to recommend the destination ($\beta = 0.123$, $p = 0.010$), supporting H3. However, no significant relationship was found between satisfaction and revisit intention ($\beta = 0.024$, $p = 0.804$); therefore, H4 was not supported.

Overall, the findings indicate that Erasmus mobility contributes simultaneously to student development, destination promotion and institutional internationalisation, reinforcing the strategic role of international academic mobility within higher education management.

Table 6: Correlation Matrix

Variable	1	2	3
Mobility experience	1		
Recommendation intention	0.30*	1	
Revisit intention	0.03	-0.11	1

* $p < 0.05$

Source: Own elaboration

Table 7: Regression Results for Satisfaction and Recommendation Intention

Variable	β	t	p
Satisfaction index	0.123	2.64	0.010

Source: Own elaboration

Table 8: Regression Results for Satisfaction and Recommendation Intention

Variable	β	t	p
Satisfaction index	0.024	0.25	0.804

Source: Own elaboration

Overall, the results suggest that Erasmus mobility experiences play an important role in shaping students' perceptions of the host destination and their willingness to recommend it to others. However, the findings also indicate that positive mobility experiences do not necessarily translate into intentions to revisit, highlighting potential differences between academic mobility behaviour and traditional tourism patterns.

Beyond their educational outcomes, the findings reinforce the role of Erasmus students as academic tourists whose experiences generate value for host destinations. High levels of satisfaction and recommendation intention suggest that international students act as informal destination ambassadors, promoting destinations through positive word-of-mouth and personal networks. These results support previous research on academic tourism and indicate that international mobility simultaneously creates educational, institutional and territorial value. Consequently, Erasmus programmes should be understood not only as higher education initiatives but also as strategic instruments for destination promotion and international visibility.

5. Conclusions

This study examined international academic mobility through the complementary perspectives of higher education management, human capital development, and academic tourism. The findings confirm that Erasmus students represent a distinct segment of academic tourists whose mobility experiences generate educational, institutional and territorial value. Beyond academic activities, international students actively engage with host destinations, contributing to cultural exchange and destination promotion.

The empirical results support the proposed conceptual model. Students' motivations positively influence the quality of the mobility experience (H1), which in turn enhances overall satisfaction (H2). Satisfaction significantly increases students' intention to recommend the destination (H3), confirming previous research on destination loyalty. However, satisfaction does not significantly influence revisit intention (H4), suggesting that loyalty patterns among international students differ from those of conventional tourists and are more strongly influenced by future educational, professional and personal opportunities.

The findings further demonstrate that Erasmus mobility contributes to Human Capital Development by strengthening communication, intercultural, language and social competencies that enhance graduate employability while supporting higher education internationalisation strategies.

From a practical perspective, universities and destination management organisations should strengthen collaboration to design mobility programmes that integrate academic excellence with cultural and tourism experiences. Recognising international students as long-stay academic tourists and informal destination ambassadors can simultaneously enhance institutional attractiveness, destination competitiveness and territorial value creation.

These findings also have important implications for higher education management and destination governance. Universities should recognise Erasmus mobility as a strategic investment that extends beyond internationalisation by strengthening human capital, institutional attractiveness and international competitiveness. Likewise, destination management organisations and local authorities should actively collaborate with higher education institutions to maximise the educational, economic and territorial benefits generated by international student mobility.

Despite the limitations associated with the sample size and the focus on a single higher education institution, this study provides empirical evidence that Erasmus mobility represents a strategic investment in Human Capital Development while simultaneously generating educational, institutional and territorial value. These findings highlight the importance of Erasmus programmes not only as educational initiatives but also as strategic management instruments that strengthen institutional competitiveness, foster destination governance and contribute to sustainable territorial development.

Acknowledgements

This work was supported by national funds through FCT - Fundação para a Ciência e Tecnologia, I.P. under the project UNIAG UID/04752/2025 (DOI 10.54499/UID/04752/2025)

Ethics Declaration: No ethical clearance required

AI Declaration: AI tools were used to perform spell checks.

References

Bae, S., & Song, H. (2017). Intercultural sensitivity and tourism patterns among international students in Korea: Using a latent profile analysis. *Asia Pacific Journal of Tourism Research*, *22*(4), 436–448.

Bilecen, B., & Van Mol, C. (2017). Introduction: International academic mobility and inequalities. *Journal of Ethnic and Migration Studies*, *43*(8), 1241–1255. https://doi.org/10.1080/1369183X.2017.1300225

Camară, G., & Nițoaia, P. (2020). Analyzing the tourist behavior of international students in Warsaw. *Analele Universităţii din Oradea, Seria Geografie*, *30*(2), 167–175.

Camargo, B., & Quintanilla, D. (2018). Análisis del turismo académico en Monterrey (México). *Turismo y Sociedad*, *23*.

De Crasto Lourenço, S., Breda, Z., & Pereira, E. T. (2018). Turismo académico: Um estudo sobre os estudantes Erasmus na Universidade de Aveiro. *Revista Turismo & Desenvolvimento*, *29*, 107–123.

Deyà-Tortella, B., Mendez-Duron, R., & Rejón-Guardia, F. (2021). Revisiting an academic tourism destination: An empirical analysis of the role of motivations, attitudes, satisfaction, and electronic word of mouth. In F. Martínez-Roget & X. Rodríguez (Eds.), *Academic tourism: Perspectives on international mobility in Europe* (pp. 45–66). Springer. https://doi.org/10.1007/978-3-030-64837-2

European Commission. (2020). *Erasmus+ EU programme for education, training, youth and sport*. https://erasmus-plus.ec.europa.eu/about-erasmus/what-is-erasmus

Filipe, S., Barbosa, B., Amaral Santos, C., Pinheiro, M. M., Simões, D., & Paiva Dias, G. (2021). Exchange students' views on tourism: The impact of first-hand experiences on transversal skills development and loyalty to the host destination. In F. Martínez-Roget & X. Rodríguez (Eds.), *Academic tourism: Perspectives on international mobility in Europe* (pp. 143–160). Springer.

Gallarza, M., Lupu, C., & Barton-Harvey, J. (2024). Erasmus-driven destination experience and students' ambassadorship behaviour: A multi-stakeholder perspective. *European Journal of Tourism Research*, *37*, 3719.

García-Rodríguez, F., & Mendoza Jiménez, J. (2015). The role of tourist destination in international students' choice of academic center: The case of Erasmus programme in the Canary Islands. *PASOS. Revista de Turismo y Patrimonio Cultural*, *13*(1). https://doi.org/10.25145/j.pasos.2015.13.012

Надирова, Г. Е. (2018). New trends in international academic mobility. *Journal of Oriental Studies*, *85*(2), 96–101.

Harazneh, I., Al-Tall, R. M., Al-Zyoud, M. F., & Abubakar, A. M. (2018). Motivational factors for educational tourism: Marketing insights. *Management & Marketing*, *13*, 796–811.

Jarvis, J. (2020). "Study in Estonia": The strategic implications of hosting international students on Estonia's tourism economy. *Journal of Baltic Studies*, *51*(2), 261–274. https://doi.org/10.1080/01629778.2019.1700975

Jason, M., Lam, B., Sia, C., Ooi, C., & Goh, M. (2011). Edutourism: The study of tourism behaviour of international students in Malaysia. *International Journal on Social Science, Economics and Art*, *1*(3), 207–212.

Lee, T. H. (2009). A structural model to examine how destination image, attitude, and motivation affect the future behaviour of tourists. *Leisure Sciences*, *31*(3), 215–236. https://doi.org/10.1080/01490400902837787

Lesjak, M., Juvan, E., Ineson, E. M., Yap, M. H., & Axelsson, E. P. (2015). Erasmus student motivation: Why and where to go? *Higher Education*, *70*(5), 845–865. https://doi.org/10.1007/s10734-015-9871-0

Martínez-Roget, F., & Rodríguez, X. A. (2021). Academic tourism: Conceptual and theoretical issues. In F. Martínez-Roget & X. Rodríguez (Eds.), *Academic tourism: Perspectives on international mobility in Europe* (pp. 7–20). Springer.

Masri, B. (2017). The trends of international academic mobility in the world. *Journal of Multidisciplinary Research and Development*, 84–86.

Monteiro, A. (2014). *A mobilidade académica europeia e o turismo educativo e cultural: Factores de decisão e de motivação* (Doctoral dissertation). University of Coimbra.

OECD. (2017). *OECD handbook for internationally comparative education statistics: Concepts, standards, definitions and classifications*. OECD Publishing.

Oliveira, A., & Freitas, M. (2016). Motivações para mobilidade académica internacional: A visão de alunos e professores universitários. *Educação em Revista*, *32*, 217–246.

Oliveira, C. (2021). *Turismo académico no Porto: O caso dos estudantes de mobilidade internacional* (Doctoral dissertation). Instituto Politécnico do Porto.

Pinto, M., Moscardi, E., Gomes, E., & Nakatani, M. (2021). The touristudent: How international academic mobility can contribute to tourism. *Journal of International Students*, *11*(1), 60–80.

Preko, A., Doe, F., & Dadzie, S. (2019). The future of youth tourism in Ghana: Motives, satisfaction and behavioural intentions. *Journal of Tourism Futures*, *5*(1), 5–21. https://doi.org/10.1108/JTF-12-2017-0057

Rodríguez, X. A., Martínez-Roget, F., & Pawlowska, E. (2012). Academic tourism demand in Galicia, Spain. *Tourism Management*, *33*(6), 1583–1590. https://doi.org/10.1016/j.tourman.2012.02.005

Martínez-Roget, F., López, X., & Pawlowska, E. (2013). Academic tourism in Galicia: Other form of universities contribution to local economies. *Cuadernos de Turismo*, *32*, 333–335.

Scott, P. (2015). Dynamics of academic mobility: Hegemonic internationalisation or fluid globalisation. *European Review*, *23*(S1), S55–S69. https://doi.org/10.1017/S106279871400076X

Tang, C. (2021). The threshold effects of educational tourism on economic growth. *Current Issues in Tourism*, *24*(1), 33–48. https://doi.org/10.1080/13683500.2020.1731588

Tomasi, S., Paviotti, G., & Cavicchi, A. (2020). Educational tourism and local development: The role of universities. *Sustainability*, *12*(17), 6766. https://doi.org/10.3390/su12176766

Unurlu, Ç. (2021). Academic tourism and dynamics of tourism destinations. In F. Martínez-Roget & X. Rodríguez (Eds.), *Academic tourism: Perspectives on international mobility in Europe* (pp. 21–43). Springer.

Yoon, Y., & Uysal, M. (2005). An examination of the effects of motivation and satisfaction on destination loyalty. *Tourism Management*, *26*(1), 45–56. https://doi.org/10.1016/j.tourman.2003.08.016

AI Use, Environmental Awareness and Moral Disengagement Among Gen Z Business Students

Dovilé Daveluy and Adib Bensalem
ESCE International Business School, Paris, France

dovile.daveluy@esce.fr
adib.bensalem@esce.fr

Abstract: Generative artificial intelligence (AI) has become a defining feature of how Generation Z business students learn, work, and produce knowledge. It is also among the most resource-intensive consumer technologies ever deployed, requiring substantial water and electricity for both training and use. Yet the environmental costs of AI remain largely invisible to its end users, and existing AI literacy frameworks systematically exclude environmental considerations from their account of responsible AI use. Drawing on four focus groups and 42 open-response questionnaires conducted at an international business school, this study examines how environmentally aware Gen Z business students reconcile intensive AI use with their stated environmental commitments. Using reflexive thematic analysis of 395 double-coded segments, we identify a four-stage moral disengagement architecture for AI sustainability. The architecture begins with productivity primacy with AI use framed as professionally unavoidable, proceeds through rationalisation and collective disengagement, then responsibility delegation to governments and corporations, and culminates in technological solutionism, in which future innovation is expected to resolve environmental concerns. Each stage closes a specific cognitive and moral gap left open by the previous one, producing an internally coherent structure that allows pro-environmental values to coexist with high-intensity AI use without moral incongruence. The findings also reveal asymmetry in AI education. Participants demonstrated awareness of cognitive and academic risks associated with AI, largely reflecting institutional messaging, while environmental risks remained fragmented, informal, and weakly connected to behavioural decision-making. Although many students expressed concern about sustainability, environmental considerations rarely entered their ethical evaluation of AI use. The study extends Bandura's moral disengagement theory by demonstrating its sequential, architecture-like operation in a high-uptake technology context. It also proposes Green AI Literacy as a missing dimension of existing AI literacy frameworks. Finally, it provides preliminary insights into how higher education institutions might better integrate environmental sustainability into AI literacy education.

Keywords*:* Green AI literacy, Environmental ethics, Moral disengagement, Generation Z, Business education, Sustainability

1. Introduction

A single query to a generative AI model consumes water in the milliliter range and emits carbon in the gram range (Sidorkin, 2025). Scaled across the hundreds of millions of users now interacting with these tools daily, the aggregate footprint already rivals the annual emissions of medium-sized nations (Guidi et al, 2024; Yang et al, 2024). Yet for most users, especially Generation Z, the cohort that has integrated these tools most deeply into everyday life, AI remains experientially weightless. Nothing is extracted, no waste is visible, no meter ticks on the screen. The "black box" mythology of AI (Brevini, 2020) operates not only at the level of algorithms, but at the level of matter where the physical infrastructure of generative AI is doubly invisible.

This invisibility is reproduced inside educational frameworks preparing users to engage with AI. Foundational AI literacy frameworks (Long and Magerko, 2020; Ng et al., 2021; Pinski and Benlian, 2024) and more recent multidimensional models (Hackl et al., 2026) consistently include cognitive, practical, critical and ethical competencies, yet environmental sustainability remains absent. The OECD/European Commission AI Literacy Framework draft (OECD-EC, 2025) acknowledges environmental costs but does not operationalise them as a distinct literacy domain. AI users are taught to evaluate fairness, accountability, and academic integrity, but not ecological footprint.

This omission is especially consequential for Gen Z, a cohort of digital natives (Chen, & Ha, 2023; Yadav, & Rai, 2017; Zhu, 2023), characterised by sustainability values (Jezierski, 2025), and a persistent attitude–behaviour gap when convenience and utility dominate decision-making (Evanilay et al., 2024; Williams and Hodges, 2020). This tension is emerging in AI use, when environmentally aware students rely heavily on resource-intensive tools without a framework for evaluating the trade-off. How they reconcile this tension remains empirically underexplored. System-level scholarship on AI's footprint dominates the literature (Berthelot et al, 2024; Verdecchia et al, 2023), while user-level evidence is scarce.

This study examines how Gen Z business students reconcile intensive use of generative AI with their stated environmental values, using a qualitative design. Three research questions guide the inquiry:

(RQ1) How knowledgeable are Gen Z business students about the environmental impacts of AI?

(RQ2) How do they navigate the trade-off between AI-driven productivity benefits and environmental costs?

(RQ3) How can higher education curricula empower them to be more eco-conscious users of AI?

The paper makes three contributions. First, it identifies a four-stage moral disengagement architecture for AI sustainability that systematically neutralises the values-to-behaviour link predicted by Stern's (2000) Value-Belief-Norm theory. Drawing on Bandura's (1999, 2002) mechanisms of moral disengagement and Morozov's (2013) critique of technological solutionism, we show that these tactics operate sequentially, with each stage closing a moral gap left open by the previous one. The study extends moral disengagement theory by showing how disengagement can function as a structured architecture with an invariant entry point and final stage rather than a static set of parallel mechanisms. Second, we propose Green AI Literacy as a missing dimension of existing AI literacy frameworks. Finally, while the study does not primarily focus on educational interventions, the findings provide preliminary insights into how higher education institutions might better incorporate environmental sustainability into AI literacy education.

2. Background

2.1 AI's Environmental Footprint and the Rebound Paradox

AI's environmental costs are real, growing, and structurally embedded. At the micro level, large generative models consume water in milliliter ranges per query (Sidorkin, 2025). At infrastructure scale, data centers are projected to consume up to 8% of U.S. electricity demand by 2030 (Jha et al, 2025), with the aggregate carbon footprint of major AI systems already comparable to medium-sized nations (Yang et al, 2024). A life-cycle perspective further reveals that operational measurements underestimate true impact by overlooking hardware production, rare metal extraction, and embodied emissions (Berthelot et al, 2024). The empirical evidence is inconclusive. Under some conditions, AI deployment is associated with reductions in carbon emissions through energy efficiency and industrial upgrading (Ding et al, 2023; Wang, Li and Li, 2024). But a critical pattern complicates these findings. Following Jevons' (1865) observation, efficiency gains in resource-intensive technologies typically generate rebound effects. As technologies become more efficient and convenient, they increase overall demand, causing aggregate consumption to rise (Gillingham, 2016; Sorrell, 2009). Alnafrah (2025) provides the first systematic evidence that the same dynamic operates for AI. Efficiency gains are more than offset by expanded consumption, with a threshold beyond which environmental damage accelerates. The implication is that AI's environmental trajectory is shaped by how users, organisations and curricula frame the productivity–sustainability trade-off, not only by technical model design.

2.2 Generation Z's Environmental Values and the Attitude–behaviour gap

Generation Z is consistently characterised as proclaiming sustainability values (Gomes et al., 2023; Jezierski, 2025). Yet research also documents a persistent attitude–behaviour gap, most visibly in fast fashion, where environmental awareness coexists with high consumption when affordability, immediacy and peer norms dominate decision-making (Evanilay et al, 2024; Niinimäki et al, 2020). Williams and Hodges (2020) frame this as a structural feature of Gen Z behaviour rather than a personal failure. This generation has grown up immersed in digital media, with worldviews and behaviors significantly shaped by social media content (Chen & Ha, 2023; Confetto et al., 2023; Yadav & Rai, 2017; Zhu, 2023). This digital environment not only shapes consumption patterns but also influences how emerging technologies are perceived, adopted, and integrated into everyday life. Consequently, many conditions sustaining the attitude–behaviour gap in consumer contexts are also present—and potentially amplified—in AI use. AI tools are free at the point of use, deliver visible productivity gains, are normalised through peer adoption, and confer competitive advantage in professional settings (Chan and Hu, 2023). At the same time, AI's environmental costs are even less visible to end users than those of fast fashion: no garment to touch, no label to read, no supply chain narrative in mainstream media.

2.3 The Missing Environmental Dimension

AI literacy has emerged as a priority concept across education and policy (Long and Magerko, 2020; Ng et al, 2021; Pinski and Benlian, 2024). Dominant frameworks converge on cognitive, technical, ethical and societal dimensions, with ethics typically described in terms of fairness, transparency, accountability, privacy and safety. The environmental ethics of AI (resource extraction, water consumption, energy demand, electronic waste and unequal geographical burdens) are not foregrounded in these frameworks. Even Hackl et al.'s (2026) AI Literacy Heptagon, a comprehensive recent synthesis, lists sustainability only at the periphery.

Two recent developments hint at change: the OECD-EC (2025) framework explicitly requires learners to weigh the environmental cost of AI use, and Cheng et al. (2025) demonstrate that AI literacy affects green absorptive capacity. Both are partial since the former is under-operationalised, while the latter operates at the organisational, not individual level. This paper proposes Green AI Literacy as the missing individual-level dimension.

2.4 Theoretical Framing

To explain how environmentally aware users sustain intensive AI use without experiencing moral incongruence, we draw on three complementary traditions. Bandura's (1999, 2002) *moral disengagement theory* specifies psychosocial mechanisms (moral justification, advantageous comparison, distortion of consequences, displacement and diffusion of responsibility, among others) by which individuals selectively deactivate their internal moral standards while continuing to act inconsistently with them. The framework has become central in business ethics for explaining participation in organisational wrongdoing (Detert, Treviño and Sweitzer, 2008; Moore, 2008). Stern's (2000) *Value-Belief-Norm* (VBN) theory specifies the causal chain through which biospheric values shape beliefs about consequences, ascription of responsibility, personal norms, and ultimately behaviour, while identifying where the chain can break. Morozov's (2013) critique of technological solutionism describes how present moral problems are reframed as future technical solutions. We argue that these mechanisms operate not as alternatives but as a sequential architecture in which each stage closes a moral gap left open by the previous one.

3. Methodology

This study adopts a qualitative, multi-method research design grounded in an interpretivist epistemology. Issues raised by the research questions invoke forms of ethical sensemaking best surfaced through dialogic and reflective formats that allow participants to articulate value tensions in their own terms (Lim, 2024). To triangulate across discursive formats and reduce limitations of any single qualitative instrument (Milfont, 2008), the study combines two complementary data sources: four focus group discussions and 42 individual qualitative questionnaires.

Participants were recruited from business programmes at ESCE International Business School in France. The questionnaire sample comprised 42 participants. The four focus groups were composed of students who had also completed the questionnaire, yielding a total of 42 unique participants across both data sources rather than two separate samples, enabling within-subject triangulation. Three focus groups comprised generalist business students, while the fourth (TMIE) included students with substantial ESG exposure. The TMIE group is referenced only where contrasts with the other groups provide analytical insight. The focus group guide progressed from descriptions of AI use, through elicitation of environmental knowledge, to projective and normative scenarios. The open-response questionnaire combined five Likert items (T1–T5) with seven scenario questions (Q1–Q7). The analytical centerpiece is the Alex scenario (Q1), a structured vignette in which participants evaluate a fictional master's student who used generative AI to produce substantial portions of his thesis. Q4 directly asked whether environmental cost should figure in this ethical evaluation.

Data were analysed using Braun and Clarke's (2006; 2021) six-phase reflexive thematic analysis. Coding was conducted independently by both authors across the entire corpus, yielding 395 individually tagged segments. Disagreements were systematically tracked, and consensus codes were established through structured discussion. The nine final themes (T1–T9) emerged from the consensus codebook.

4. Findings

The thematic analysis produced nine themes organised into three families mapped onto the research questions: knowledge (T1–T3, RQ1), the four-stage trade-off architecture (T4–T7, RQ2), and curricular vision (T8–T9, RQ3).

4.1 Fragmented Awareness Without Ascribed Responsibility (T1–T3)

Baseline factual knowledge of AI's environmental footprint was limited and fragmented. Many participants disclosed having no prior awareness about AI's environmental impact *("I totally was not aware of that until I started looking at this questionnaire")*. Participants' knowledge mostly concerned water usage and energy consumption, typically expressed in vague terms ("*AI… produces carbon emissions. This is the only thing I know"; "I think that AI uses a lot of water just to cool the servers*"). Knowledge sources were overwhelmingly informal. Social media, memes and documentaries dominated, while formal education was a

source only within the TMIE group. Crucially, even when awareness was present, it lacked behavioural salience, as participants frequently described environmental impact as distant and having minimal bearing on their choices ("*Honestly, I do not really feel it in a tangible way*"; "*Out of sight, out of mind*"). The Q4 coding probed whether environmental cost should figure in the evaluation of Alex's vignette: 37 codes treated it as a background fact; only 9 - as a genuine ethical factor. These findings confirm Brevini's (2020) argument that AI is mythologized as immaterial and "clean," while its environmental infrastructure remains largely hidden. Moreover, while surface-level knowledge is present, moral weight does not attach to it. In Stern's (2000) terms, the consequence-belief node of the VBN chain fails to crystallise.

4.2 The Four-stage Moral Disengagement Architecture (T4–T7)

Analysis identified a stable four-stage structure through which participants reconcile their AI use with their environmental commitments. Each stage resolves a moral challenge left unresolved by the preceding one (see Figure 1).

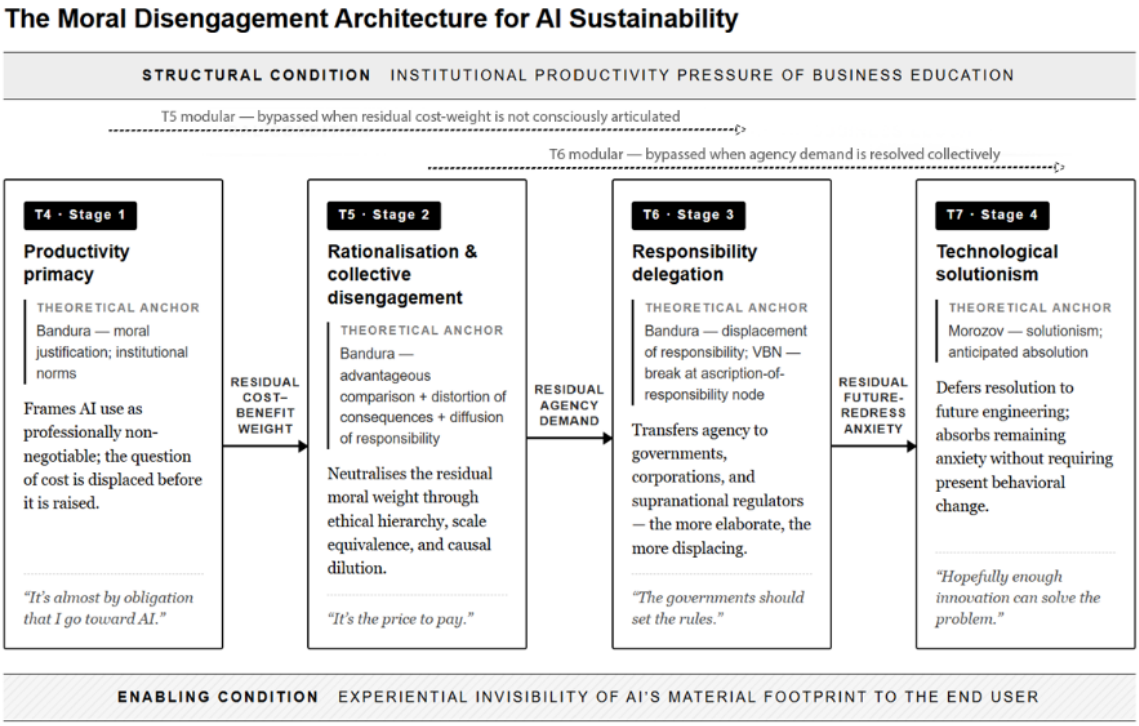


Figure 1: The moral disengagement architecture for AI sustainability

T4 — Productivity primacy. The architecture's entry point is the framing of AI use as professionally and competitively unavoidable. The vocabulary is consistent: AI is necessary, obligatory, expected ("*It's almost by obligation that I go toward AI*"; "*Whoever masters this technology will have an advantage over everyone else*"). Theoretically, this stage operates as moral justification (Bandura, 1999): a worthy purpose displaces the question of environmental cost. Notably, the source of justification is not personal preference, but the institutional norms — a socially distributed cognitive operation rather than an individual one.

T5 — Rationalisation and collective disengagement. A second cluster of responses minimizes the moral weight of acknowledged environmental cost. The most direct form of rationalization was cost acceptance: *"It's the price to pay."* Participants also engaged in advantageous comparison, framing environmental impact as less important than other ethical considerations. Participants overwhelmingly evaluated Alex's behavior through the lens of academic integrity rather than environmental cost ("*The ethical breach of academic integrity carries more weight than the carbon footprint*"). Environmental consequences were further minimized through scale equivalence, whereas AI-related impacts were presented as equivalent to other digital activities ("*everyday usage either for this or for other things generates pollution*"). Finally, participants downplayed their own contribution by emphasizing the collective scale of AI use, thereby reducing their own responsibility ("*If I change or stop using AI, others are still going to use AI*").

T6 — Responsibility delegation. The third stage transfers ethical agency from the individual user to institutional actors. T6 is the most discursively elaborated theme (39 codes in the focus group data, nearly double the codes associated with personal strategies under T9). Participants spoke extensively about who should act ("G*overnments should set the rules*"; "*Companies can adapt and try to build greener AI*"). Theoretically, T6 corresponds to Bandura's displacement of responsibility at the individual level and diffusion at the collective level, and to the failure of Stern's (2000) ascription-of-responsibility node in the VBN chain. The sophistication of the institutional vocabulary itself functions as the displacement mechanism: the more elaborate the attribution of agency to institutional actors, the less personal agency remains.

T7 — Technological solutionism. The fourth stage relocates resolution to a future technical horizon ("*Maybe we can find another solution to cool the servers*"; "*Hopefully enough innovation can solve the problem*"). Strikingly, no participant cited a documentary or course as the source of the "underwater data centers" narrative; it appeared independently across multiple groups, consistent with technological solutionism circulating in mainstream tech media and Gen Z's digital ecosystems. Optimism here is socially and culturally constructed rather than institutionally taught. Theoretically, T7 reflects Morozov's (2013) technological solutionism, which defers the moral obligation to act to future technological solutions. Unlike the preceding stages, this mechanism does not require deactivation of environmental concern but redirects it toward anticipated absolution.

Taken together, the four stages form a coherent architecture with two invariant anchors. T4 (productivity primacy) functions as the universal entry gate: in every instance of architecture-stage reasoning across both data sources, T4 appeared before any other stage, with zero violations. T7 (technological solutionism) functions as the final absorber: it appeared exclusively in focus group data (11 utterances), consistent with a discursive move that becomes necessary only once prior stages have been deployed and challenged. Between these anchors, T5 (rationalisation) and T6 (responsibility delegation) are modular: participants may deploy either or both depending on which moral challenges remain salient after the entry stage. The architecture does not require all four stages to be traversed in strict sequence, but it is functionally complete only when all four are available. By the final stage, users can simultaneously hold pro-environmental values and sustain high-intensity AI use without experiencing moral incongruence.

4.3 Vision for Green AI Literacy (T8–T9)

Participants characterised their AI education as overwhelmingly productivity-oriented ("*They train us to be more performant*"; "*They teach us how to save time with AI*") and identified environmental impact as a curricular gap ("*The school hasn't prepared me for the environmental cost of AI*"). T9, the largest theme in the dataset (98 codes), captures demand for an education that integrates efficiency with environmental responsibility ("*We should be taught how to use it efficiently, without creating negative secondary effects*"; "*Students should know when AI is necessary and when it is not*"). These demands map directly onto the three dimensions of the Green AI Literacy construct: cognitive, affective, and behavioural.

The TMIE focus group exhibited deeper knowledge under T1 and more nuanced ethical reasoning under Q4, suggesting that curricular intervention is consequential, even though our design does not support causal attribution.

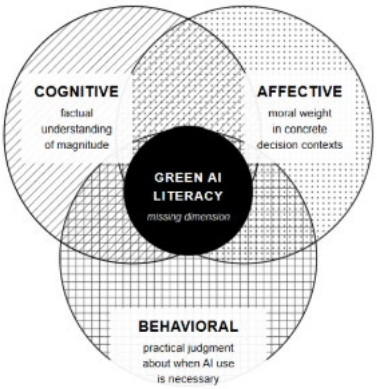


Figure 2: The Green AI Literacy construct

Across the data, students articulated significant institutionally induced anxiety about AI's effects on cognition and integrity, but only fragmentary, self-constructed concern about its environmental effects. This cognitive–

environmental asymmetry between institutionally taught risks and those learned by default from social media is depicted in Figure 3.

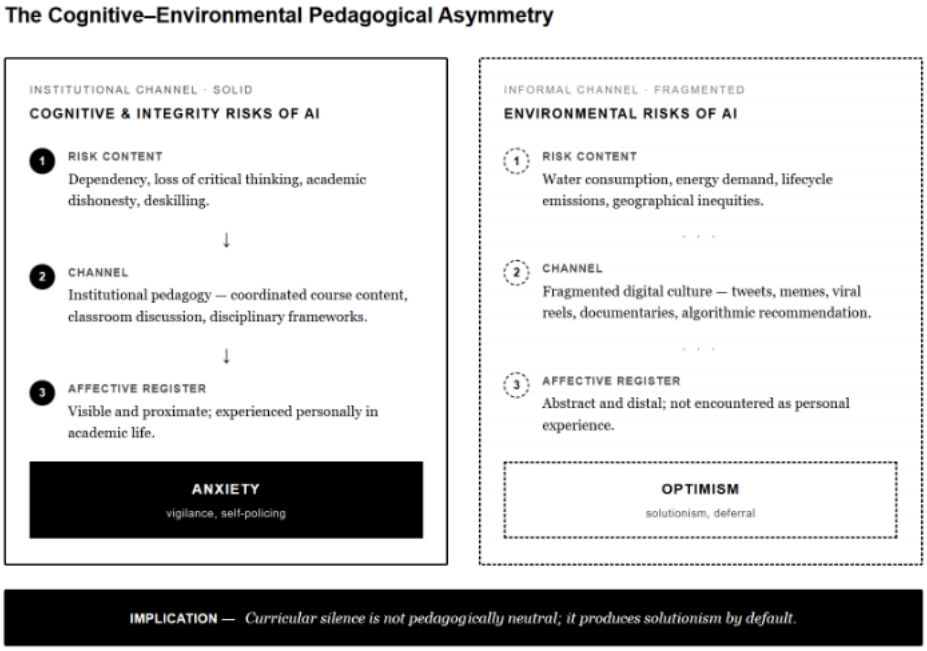


Figure 3: The cognitive–environmental pedagogical asymmetry

5. Discussion

The findings extend Bandura's moral disengagement framework in a direction the literature has not pursued. Bandura's mechanisms have been applied across business ethics contexts to identify which mechanism operates in any given setting. Our findings document an empirical setting in which the mechanisms operate not as alternatives but as a sequential structure: each resolves an open cognitive gap, and the architecture is functionally complete only when all operations are available together. This is the paper's principal contribution to theory: moral disengagement in high-uptake technology contexts operates through a structured architecture with an invariant entry gate (T4) and final absorber (T7), not merely as a menu of co-available mechanisms. It also specifies where Stern's (2000) VBN chain breaks under conditions of high institutional pressure - at the ascription-of-responsibility node, where Bandura's displacement and the institutional sophistication of business education intersect.

The findings support Green AI Literacy as a missing dimension of AI literacy. Building on D'Attoma and Ieva's (2024) multidimensional environmental consciousness construct and aligned with the Affective-Behavioural-Cognitive-Ethical (ABCE) scaffolding of Ng et al (2023), we define Green AI Literacy as the integrated capacity to recognise, evaluate, and incorporate AI environmental consequences into behavioral decisions. It comprises three interrelated dimensions: a *cognitive* dimension (factual understanding of magnitude and mechanism), an *affective* dimension (moral weight attached to decisions), and a *behavioural* dimension (practical judgement about when AI use is necessary). Rather than replacing existing AI literacy dimensions, Green AI Literacy complements them by addressing an environmental blind spot in current frameworks. Empirically, participants demonstrated fragmented but often accurate awareness of AI's environmental impacts (T1), and many articulated concrete strategies for more responsible use (T9). The primary breakdown occurred at the affective level, where environmental knowledge rarely translated into ethical concern or behavioural restraint. Green AI Literacy therefore addresses not only what users know about AI's environmental footprint, but also whether they recognise its relevance for their behaviour.

The implications extend beyond education. If the cognitive architecture identified in this study carries forward into participants' future managerial roles, the environmental ethics of corporate AI adoption may be governed by the same four-stage structure. Therefore, educational and corporate interventions are likely to be more effective if designed to interrupt one or more stages of this architecture.

6. Implications and Limitations

Implications. We suggest that Green AI Literacy should be embedded as a core competency within business education rather than acquired informally through fragmented external sources. The cognitive dimension can be taught through magnitude calibration (lifecycle assessments, per-query versus aggregate framings, the rebound paradox). The affective dimension requires engagement with ethical hierarchy that subordinates environmental costs. The behavioural dimension can be supported through tools that make environmental cost visible at the point of use. None of these interventions are technically demanding; they require the recognition that environmental costs belong within institutional AI conversations.

Limitations. The sample is drawn from a single French international business school. Therefore, documented architecture may reflect that institutional culture. Focus groups and self-reported questionnaires remain vulnerable to social desirability bias (Milfont, 2008). The study captures reasoning at a single point in time. The focus on business students excludes other professional cohorts whose reasoning architectures may differ in instructive ways. While the TMIE contrast is suggestive, the study was not designed as a comparative intervention, and the associated effects cannot be causally attributed. Future research should pursue quantitative validation of the four-stage architecture, cross-cultural and cross-institutional replication, intervention studies converting the TMIE finding into causal evidence, and longitudinal follow-up into professional roles.

Ethics Declaration*:* Ethical clearance was obtained through ESCE International Business School. All participants provided written informed consent using the ESCE 2026 consent form, allowing recording, transcription and anonymised publication of quoted material. Participation was voluntary, with no compensation, and participants retained the right to withdraw at any stage. Identifying information was stripped at intake and replaced with anonymised identifiers prior to analysis. All quoted materials have been anonymised; transcripts are retained by the researchers.

AI Declaration: The authors used Claude AI (Anthropic, Opus 4.7) to support code aggregation, literature identification, drafting, and structural editing. All theoretical claims, coding decisions, empirical analyses, findings, and interpretations are the authors' own. Data collection, coding, and analytical synthesis were conducted entirely by the authors. No empirical material was generated by AI, and all references suggested by Claude were verified against original sources. Full disclosure is consistent with the paper's commitment to responsible and transparent AI use.

The environmental impact of AI-assisted drafting cannot be determined precisely. Anthropic neither publishes nor displays per-token environmental metrics. Based on estimates in 2.1 (Sidorkin, 2025), the session consumed approximately 1.5–5.5 liters of water and generated 0.25–3 kg CO_2-equivalent emissions. Until such metrics are visible at the point of use, even researchers studying Green AI Literacy cannot confidently assess the footprint of their AI use.

References

Alnafrah, I. (2025) "The two tales of AI: A global assessment of the environmental impacts of artificial intelligence from a multidimensional policy perspective", *Journal of Environmental Management*, Vol. 392, p 126813.

Bandura, A. (1999) "Moral disengagement in the perpetration of inhumanities", *Personality and Social Psychology Review*, Vol. 3, No. 3, pp 193–209.

Bandura, A. (2002) "Selective moral disengagement in the exercise of moral agency", *Journal of Moral Education*, Vol. 31, No. 2, pp 101–119.

Berthelot, A., Caron, E., Jay, M. and Lefèvre, L. (2024) "Estimating the environmental impact of generative-AI services using an LCA-based methodology", *Procedia CIRP*, Vol. 122, pp 707–712.

Braun, V. and Clarke, V. (2006) "Using thematic analysis in psychology", *Qualitative Research in Psychology*, Vol 3, No. 2, pp 77–101.

Braun, V. and Clarke, V. (2021) *Thematic Analysis: A Practical Guide*, Sage.

Brevini, B. (2020) "Black boxes, not green: Mythologizing artificial intelligence and omitting the environment", *Big Data & Society*, Vol. 7, pp 1-5.

Chan, C.K.Y. and Hu, W. (2023) "Students' voices on generative AI: Perceptions, benefits, and challenges in higher education", *International Journal of Educational Technology in Higher Education*, Vol. 20, No.1, p.43.

Chen, P. and Ha, L. (2023) "Gen Z's social media use and global communication", *Online Media and Global Communication*, Vol. 2, pp 301–303.

Cheng, J., Xu, N.-R., Khan, N.U. and Singh, H. (2024) "The impacts of artificial intelligence literacy, green absorptive capacity, and green information system on green innovation", *Corporate Social Responsibility and Environmental Management*, Vol. 32, No.2, pp 2375-2389.

Confetto, M.G., Covucci, C., Addeo, F. and Normando, M. (2023) "Sustainability advocacy antecedents: How social media content influences sustainable behaviours among Generation Z", *Journal of Consumer Marketing*, Vol 40, No. 6, pp 758-774.

D'Attoma, I. and Ieva, M. (2024) "A new composite index to assess environmental consciousness using survey data and big data: Empirical evidence from European consumers", *Socio-Economic Planning Sciences*, Vol. 95, p.102038.

Detert, J.R., Treviño, L.K. and Sweitzer, V.L. (2008) "Moral disengagement in ethical decision making: A study of antecedents and outcomes", *Journal of Applied Psychology*, Vol. 93, No. 2, pp. 374–391.

Ding, T., Li, J., Shi, X., Li, X. and Chen, Y. (2023) "Is artificial intelligence associated with carbon emissions reduction? Case of China", *Resources Policy*, Vol. 85, p.103892.

Evanilay, E., Lee, M.D., Millenia, M. and Murwani, I.A. (2024) "Why Generation Z still buy fast fashion although environmental awareness is high?", *Scholars Journal of Economics, Business and Management*, Vol. 11, No. 9, pp. 268–278.

Gillingham, K., Rapson, D. and Wagner, G. (2016) "The rebound effect and energy efficiency policy", *Review of Environmental Economics and Policy*, Vol. 10, No. 1, pp. 68–88.

Gomes, S., Lopes, J. and Nogueira, S. (2023) "Willingness to pay more for green products: A critical challenge for Gen Z", *Journal of Cleaner Production*, Vol. 390, p. 136092.

Guidi, G.M., Dominici, F., Gilmour, J., Butler, K., Bell, E., Delaney, S. and Bargagli Stoffi, F.J. (2024) "Environmental burden of United States data centers in the artificial intelligence era", [online], *arXiv preprint arXiv:2411.09786*.

Hackl, V., Mueller, A.S. and Sailer, M. (2026) "The AI literacy heptagon: A structured approach to AI literacy in higher education", *Computers and Education: Artificial Intelligence*, Vol. 8, p. 100540.

Jevons, W.S. (1865) *The Coal Question: An Inquiry Concerning the Progress of the Nation, and the Probable Exhaustion of Our Coal Mines*, Macmillan.

Jezierski, D. (2025) "Generation Z's pro-environmental behaviour", *Humanities and Social Sciences Quarterly*, Vol. 32, No. 2, pp. 67–84.

Jha, R., Jha, R. and Islam, M. (2025) "Forecasting US data center CO_2 emissions using AI models: Emissions reduction strategies and policy recommendations", *Frontiers in Sustainability*, Vol. 5, p. 1423456.

Li, P., Yang, J., Islam, M.A. and Ren, S. (2025) "Making AI less 'thirsty': Uncovering and addressing the water footprint of AI models", *Communications of the ACM*, Vol. 68, No. 7, pp. 54–62.

Lim, W.M. (2024) "What is qualitative research? An overview and guidelines", *Australasian Marketing Journal*, Vol. 33, No. 2, pp. 199–229.

Long, D. and Magerko, B. (2020) "What is AI literacy? Competencies and design considerations", in *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, pp. 1–16.

Milfont, T.L. (2009) "The effects of social desirability on self-reported environmental attitudes and ecological behaviour", *The Environmentalist*, Vol. 29, No. 3, pp. 263–269.

Moore, C. (2008) "Moral disengagement in processes of organizational corruption", *Journal of Business Ethics*, Vol. 80, No. 1, pp. 129–139.

Morozov, E. (2013) *To Save Everything, Click Here: The Folly of Technological Solutionism*, PublicAffairs.

Ng, D.T.K., Leung, J., Chu, S.K.W. and Qiao, M.S. (2021) "Conceptualizing AI literacy: An exploratory review", *Computers and Education: Artificial Intelligence*, Vol. 2, p. 100041.

Ng, D.T.K., Wu, W., Leung, J., Chiu, T. and Chu, S.K.W. (2024) "Design and validation of the AI literacy questionnaire: The affective, behavioural, cognitive and ethical approach", *British Journal of Educational Technology*, Vol. 55, No. 3, pp. 1082–1104.

Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T. and Gwilt, A. (2020) "The environmental price of fast fashion", *Nature Reviews Earth & Environment*, Vol. 1, No. 4, pp. 189–200.

OECD and European Commission (2025) *Empowering Learners for the Age of AI: An AI Literacy Framework for Primary and Secondary Education (Review Draft)*, [online], AILitFramework_ReviewDraft.pdf.

Pinski, M. and Benlian, A. (2024) "AI literacy for users: A comprehensive review and future research directions of learning methods, components, and effects", *Computers in Human Behavior: Artificial Humans*, Vol. 2, No. 1, p. 100062.

Sidorkin, A.M. (2025) *Environmental Impact of Generative AI: Carbon and Water Footprint*, National Institute on Artificial Intelligence in Society, [online], AI-EDU Arxiv.

Sorrell, S. (2009) "Jevons' paradox revisited: The evidence for backfire from improved energy efficiency", *Energy Policy*, Vol. 37, No. 4, pp. 1456–1469.

Stern, P.C. (2000) "New environmental theories: Toward a coherent theory of environmentally significant behavior", *Journal of Social Issues*, Vol. 56, No. 3, pp. 407–424.

Verdecchia, R., Sallou, J. and Cruz, L. (2023) "A systematic review of green AI", *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, Vol. 13, No. 4, p. e1507.

Wang, Q., Li, Y. and Li, R. (2024) "Ecological footprints, carbon emissions, and energy transitions: The impact of artificial intelligence (AI)", *Humanities and Social Sciences Communications*, Vol. 11, No. 1, pp. 1-18.

Williams, A. and Hodges, N.J. (2020) "Generation Z and socially responsible fashion consumption: Exploring the value-action gap", *International Textile and Apparel Association Annual Conference Proceedings*, Vol. 77, No. 1, Iowa State University Digital Press, [online].

Yadav, G.P. and Rai, J. (2017) "The Generation Z and their social media usage: A review and a research outline", *Global Journal of Enterprise Information System*, Vol. 9, pp. 110–116.

Yang, Y., Wang, J., Liu, Y., Yu, P., Wang, D., Zheng, P. and Zhang, M. (2024) "Revisit the environmental impact of artificial intelligence: The overlooked carbon emission source?", *Frontiers of Environmental Science & Engineering*, Vol. 18, No. 12, p. 158.

Zhu, Y. (2023) "The impact of media on Generation Z and possible future social changes", *Communications in Humanities Research*, Vol. 22, No.1, pp. 36-41.

Speaking the Same Language? Cultural Differences in Written Business Communication between Germany and the Asian/IPBC Region

Johanna Deger and Andreas Zehetner
University of Applied Sciences Upper Austria, Steyr, Austria

johanna.deger@students.fh-steyr.at
andreas.zehetner@fh-ooe.at

Abstract: In multinational organizations, internal email communication is one of the backbones of coordination across countries and time zones. This paper examines how culturally shaped communication styles influence understanding between a German headquarters and partners in the Asian/IPBC region. The analysis focuses on paired email exchanges and selected interviews from German, Vietnamese and Indian business partners. The findings show that the German side communicates in a direct, task-oriented, and documentation-focused manner, while the Vietnamese side tends to adapt more closely to this style and the Indian side combines relational warmth with a more variable use of directness and indirectness. Misunderstandings arise less from language errors than from different expectations about explicitness, responsibility, urgency, and conflict handling. The paper argues that successful collaboration depends on cultural intelligence, clearer framing of requests, and an awareness that concise email writing can be efficient in one context and potentially ambiguous or abrupt in another.

Keywords: Cross-cultural management, Intercultural communication, Cultural intelligence, Leadership styles, Global collaboration

1. Introduction

Global business increasingly relies on digitally mediated communication across countries, cultures and linguistic backgrounds. Email is still an important coordination mechanism in multinational organizations, particularly for communicating tasks, deadlines, responsibilities, and traceable decisions. However, digital communication is not insensitive to intercultural differences. The absence of nonverbal cues can make differences in directness, politeness and expectations about response and responsibility more consequential (Holtbrügge et al. 2013; Louhiala-Salminen and Kankaanranta 2012). Recent research shows that language and national differences are important barriers to digital communication in multinational firms (Tanaka 2023), while international business emails rely on interpersonal strategies to create common ground and maintain relationships (Liu and Liu 2023).

The problem now is that the same business message may be interpreted differently depending on culturally shaped expectations about what should be stated explicitly, how requests and disagreements should be expressed, and how relationships should be maintained. Understanding these differences is particularly important in multinational organizations, where communication is embedded not only in national cultures but also in specific headquarters–subsidiary and business-partner relationships.

While previous research has established that culture influences communication styles and that digital business communication can generate intercultural misunderstandings, less is known about how such differences unfold in authentic, paired email exchanges within a multinational organizational setting. Much of the existing literature examines cultural communication patterns at a general level or focuses on individual communication strategies rather than examining how messages and responses interact in everyday organizational communication. This study addresses this gap by analyzing authentic business-email exchanges between a German headquarters and two culturally distinct partner contexts: Vietnam and India.

The study asks how culturally shaped patterns of directness, politeness, hierarchy, contextual dependence, urgency, and misunderstanding become visible in everyday written business communication. Rather than treating “Asian communication” as a homogeneous category, the study compares Germany–Vietnam and Germany–India interactions to identify where communication patterns converge, where they differ, and how these differences affect collaboration. Its novelty lies in combining a cross-cultural comparative perspective with close analysis of paired, naturally occurring business emails from an actual multinational organization, providing a contextualized account of how national communication patterns interact with organizational relationships and practical coordination in international business.

2. Theoretical Foundations

The theoretical foundations of this study provide the conceptual basis for understanding how cultural differences shape written communication in multinational organizations. As global companies increasingly rely on geographically dispersed teams, written communication has become one of the most important mechanisms for coordination, knowledge sharing, and relationship management across borders. Although English is frequently used as a common corporate language, communication processes continue to be influenced by culturally embedded assumptions regarding politeness, hierarchy, clarity, and professionalism. To analyze these dynamics, this study draws on established theories from intercultural communication and cross-cultural management, particularly Hofstede's cultural dimensions theory (Hofstede 2011) and Hall's distinction between high-context and low-context communication (Hall 1976).

2.1 The Cultural Variable

The paper is grounded in the idea that communication is culturally patterned rather than neutral. Hofstede's cultural dimensions help explain why directness, hierarchy orientation, individual responsibility, and uncertainty avoidance differ across national contexts (Hofstede et al. 2010). In this perspective, Germany is commonly associated with low power distance, a strong emphasis on clarity, and a preference for direct, explicit communication. Vietnam and India, by contrast, are often described as contexts in which hierarchy, relationship orientation, and more indirect forms of expression play a larger role. These differences shape how requests are formulated, disagreement is expressed, and responsibility is attributed in professional interaction.

Hall's high-context and low-context theory adds another useful lens. Low-context communication assumes that most relevant information should be made explicit in the message itself, while high-context communication relies more heavily on shared knowledge, relationships, and situational cues (Hall 1976).

In email communication, this distinction becomes especially relevant because the medium strips away nonverbal context. A short message that is perfectly sufficient in a low-context environment may appear vague in a high-context setting, while a carefully softened message may appear indirect or evasive to a low-context reader. Earlier research confirms that email style is shaped by cultural background and is associated with differences in formalness, promptness, preciseness, task-relatedness, and relationship-relatedness (Holtbrügge et al. 2013). Likewise, research on international internal communication shows that language choice and internal communication style are tightly connected to organizational coordination and trust (Louhiala-Salminen and Kankaanranta 2012). Studies on multinational teams further suggest that language differences affect power dynamics and the ability of team members to act on their expertise (Tenzer and Pudelko 2017).

2.2 Written Communication in International Business

Written communication plays a central role in multinational organizations because it enables employees across countries and time zones to exchange information, coordinate activities, and document decisions. Email communication, in particular, has become one of the most widely used communication channels in international business environments due to its efficiency, accessibility, and asynchronous nature (Louhiala-Salminen and Kankaanranta 2012). In global organizations, written communication often functions as the primary medium through which professional relationships are maintained and organizational tasks are coordinated. As a result, the ability to communicate effectively in intercultural written exchanges has become increasingly important for organizational performance and international collaboration.

However, written communication in intercultural settings is also highly susceptible to misunderstandings because it lacks nonverbal cues such as tone of voice, facial expressions, and gestures (Ting-Toomey and Chung 2005). Employees from different cultural backgrounds may interpret the same message differently depending on their communication norms and expectations (Müller-Frommeyer and Kauffeld 2021). Research shows that communication styles vary significantly between cultures with regard to directness, politeness strategies, hierarchy orientation, and contextual framing (Holtbrügge et al. 2013; Hofweber and Jaworska 2022). In low-context cultures such as Germany, communication tends to be explicit, direct, and task-oriented, whereas high-context cultures often place greater emphasis on relational harmony, indirectness, and implicit understanding (Hall 1976). Consequently, messages that are perceived as efficient and professional in one cultural context may be interpreted as impolite or unclear in another. These differences are particularly relevant in email communication because employees must rely exclusively on written language to interpret intentions, urgency, and interpersonal tone.

The increasing use of English as a Business Lingua Franca (BELF) further complicates intercultural communication processes in multinational organizations. Although English enables collaboration across linguistic boundaries, it does not automatically eliminate cultural differences in communication behavior (Kankaanranta and Salminen 2013; Roshid et al. 2022). Instead, employees continue to apply culturally shaped communication patterns when writing in English. Recent research on intercultural business email communication shows that differences in directness, politeness, and pragmatic strategies can influence how requests and intentions are communicated across cultural contexts (Park et al. 2021; Al-Khatib 2021). Therefore, effective intercultural communication requires not only language proficiency but also intercultural awareness and the ability to adapt communication styles to diverse cultural contexts.

2.3 Empirical Context

The empirical context of this study focuses on communication processes between the German headquarters of Company X and subsidiaries or business partners in Vietnam and India. These countries were selected because they represent important operational environments within the organization and provide distinct cultural contexts for examining intercultural communication in multinational business settings. Germany serves as the headquarters context and reflects the dominant organizational communication style, while Vietnam and India represent culturally different environments in which communication norms, hierarchy perceptions, and relationship orientation differ significantly from the German context. The selected country combination therefore offers a suitable framework for analyzing how cultural differences influence written communication in everyday organizational practice.

Germany is commonly associated with a comparatively low-context communication style characterized by directness, clarity, and efficiency (Hall 1976). Communication in German business environments often prioritizes explicit information exchange, task orientation, and straightforward feedback. Hofstede's cultural dimensions further describe Germany as relatively individualistic and comparatively low in power distance, meaning that communication tends to be less hierarchical and more focused on personal responsibility and transparent interaction (Hofstede 2011). In contrast, Vietnam is generally characterized as a collectivist and high-context culture in which communication places stronger emphasis on politeness, harmony, and hierarchical sensitivity. Messages are often formulated more indirectly to preserve interpersonal relationships and avoid confrontation. Similarly, communication practices in India frequently combine relationship orientation with hierarchical awareness and contextual flexibility, although communication styles may vary depending on organizational and regional contexts (Thomas and Peterson 2016).

The decision to focus on Germany, Vietnam, and India was made for both theoretical and practical reasons. From a theoretical perspective, the selected countries represent different cultural dimensions regarding directness, hierarchy orientation, collectivism, and contextual communication, making them particularly relevant for intercultural communication research. From a practical perspective, all three country contexts are directly connected through ongoing collaboration within Company X, ensuring that the empirical analysis is based on authentic workplace communication rather than hypothetical intercultural scenarios. The study therefore contributes to existing intercultural management research by examining how cultural differences manifest in real organizational communication processes and how employees interpret and negotiate meaning in international email exchanges.

3. Methodology

Methodologically, the study draws on document analysis as a qualitative research method. Bowen emphasizes that documents are valuable because they are naturally occurring traces of organizational activity and allow researchers to examine communication in context (Bowen 2009). The READ approach further structures document analysis through the steps of readying, extracting, analyzing, and distilling, making it particularly suitable for systematic analysis of paired email exchanges (Dalglish et al. 2020). Together, these frameworks justify a close reading of authentic business emails as evidence of recurring communication patterns rather than isolated incidents.

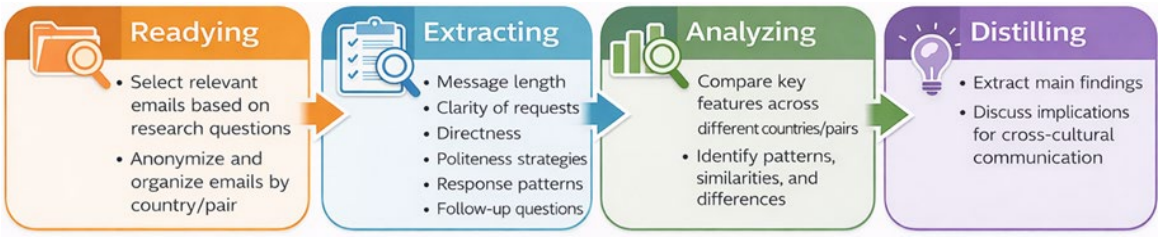


Figure 1: The READ approach (Dalglish et al. 2020)

The empirical part of the thesis uses a qualitative document analysis of internal email exchanges between the German headquarters and two partner contexts: a Vietnamese subsidiary and an Indian business partner. The corpus consists of fifteen paired email threads in total, five from Germany-Vietnam and nine from Germany-India, supplemented by selected semi-structured interviews that were used to contextualize the email findings. The material was anonymized throughout, and all company- and person-specific identifiers were removed. The analysis therefore focuses on communication patterns, not on individuals.

The emails were examined as paired interactions, meaning that each initial message was analyzed together with the corresponding reply. This design makes it possible to observe how requests, explanations, delays, and clarifications were interpreted and responded to. Following the READ approach, the material was first prepared and organized by country pair, then key communicative features were extracted, then compared across cases, and finally distilled into broader patterns. The coding scheme captured directness, politeness markers, hierarchy orientation, contextual dependence, clarity of requests, urgency framing, and signs of misunderstanding.

Table 1: Theoretical constructs and observable codes derived from them

Theoretical Construct	Observable Email Features
Hofstede (Hofstede 2011):	
Power Distance	Use of titles, formal salutations, polite or indirect language towards authorities
Individualism/Collectivism	Use of “I” versus “we”, individual versus group responsibility
Uncertainty Avoidance	Level of detail, clear instructions, structured messages, follow-up questions
Masculinity/Femininity	Task- versus relationship-focused language, direct vs. polite tone
Hall (Hall 1976):	
High-context	Indirect wording/instructions, implied requests, less explicit phrasing
Low-context	Direct wording/instructions, clearly stated expectations, explicit phrasing
Direct vs. Indirect	Commands versus softened requests, e.g. “Could you…” or “Please…”
Formality (Yadav 2025)	Use of greetings, closings, level of professionalism
Hierarchy (Gilbert 2012)	Task assignments, performance monitoring, references to agreements, managers in CC
Clarity vs. Ambiguity (Byron 2008)	Clear tasks and deadline versus unclear or implicit wording
Misunderstanding (Lim et al. 2022)	Follow-up questions, corrections, reporting differences, requests for clarification
Politeness strategies (Moon 2023)	Use of “please”, “kindly”, “thank you”, apologies, friendly openings/closings, soft phrasing
Time Orientation/Urgency (Fulmer et al. 2014)	Specific dates, phrases such as “ASAP” or “before month end”, statements highlighting urgency

Sources: Hall 1976; Byron 2008; Hofstede 2011; Gilbert 2012; Fulmer et al. 2014; Lim et al. 2022; Moon 2023; Yadav 2025)

Across both country groups, 2,154 coded segments were identified, which shows that the data were rich enough to support a detailed qualitative comparison.

Themes and Subthemes	Codes	Code Frequency	Theme Frequency
Code System | Total Coded Segments			**2154**
Cultural Differences			**1483**
Time Orientation / Urgency	Concrete Deadline	45	
	Urgency Marker	24	
	Progress & Status Update	14	
	Future Planning & Scheduling	14	**97**
Direct Communication	Direct Assertion	89	
	Direct Refusal / Rejection	19	
	Direct Complaint / Confrontation	32	
	Direct Instruction / Request	73	**213**
Indirect Communication	Indirect Assertion	38	
	Indirect Refusal / Rejection	10	
	Indirect Complaint / Confrontation	10	
	Indirect Instruction/ Request	71	**129**
Politeness Strategies	Requests & Directives	74	
	Rapport &Relationship	79	
	Gratitude & Appreciation	88	
	Apology &Face-Saving	9	
	Commitment &Collaboration	27	
	InformationTransfer	21	**298**
Cultural Dimensions	Power Distance / Hierarchy	48	
	Uncertainty Avoidance	89	
	Collectivism	3	
	Individualism	0	**140**
High-context Communication	Implicit Status Information	11	
	Implicit Problem & Error Statement	9	
	Implicit Cost & Financial Statement	8	
	Implicit Planning & Action Statement	4	**32**
Low-context Communication	Explicit Status Information	69	
	Explicit Problem & Error Statement	72	
	Explicit Cost & Financial Statement	39	
	Explicit Planning & Action Statement	62	**242**
Task Orientation	Status & Updates	71	
	Problem & Complaint	50	
	Instructions & Requests	83	
	Cost & Finance	51	
	Planning & Decision-Making	47	**302**
Relationship Orientation	Relationship Maintenance	12	
	Relationship Building	8	
	Relationship Repair	3	
	Relationship Appreciation	7	**30**

Themes and Subthemes	Codes	Code Frequency	Theme Frequency
Impact on Mutual Understanding			**671**
Understanding Gaps / Misinterpretation	Clarification Request	27	
	Information Gap	22	
	Error & Confusion	16	
	Alignment & Verification	12	**77**
Coordination Efficiency / Delays	Meeting & Communication Coordination	43	
	Task Delegation & Follow-Up	42	
	Delivery & Shipment Coordination	114	
	Delay & Obstacle	24	**223**
Escalation & Pressure Dynamics	Urgency Pressure	30	
	Repeated Request & Persistence	13	
	Financial & Business Pressure	21	
	Direct Escalation	17	**81**
Responsibility Alignment / Conflict	Responsibility Attribution	44	
	Responsibility Rejection	32	
	Agreement & Alignment	48	
	Dispute & Conflict	52	**176**
Conflict & Resolution Behaviour	Conflict Trigger	27	
	Conflict Avoidance	23	
	Conflict Escalation	25	
	Conflict Resolution	39	**114**

Figure 2: Code map (Source: Authors' analysis using MAXQDA based on the empirical data; theoretical interpretation informed by the literature cited in Table 1.)

In parallel to the email content analysis, interviews were conducted. The interviews did not function as independent data sources in a separate quantitative sense. Instead, they served as interpretive support. They helped explain why certain exchanges were written the way they were and whether the communicative effects visible in the emails aligned with the participants' own experience. This triangulation strengthened the credibility of the findings and made it possible to distinguish between actual misunderstanding, operational delay, and deliberate communication style adaptation.

4. Findings

The empirical analysis is based on a total of fifteen internal business email exchanges, organized into two country pairs: Germany-Vietnam (GER-VIE-01 to GER-VIE-05) and Germany-India (GER-IND-01 to GER-IND-09). All emails were collected from Company X and represent authentic, day-to-day operational communication between the German headquarters and respective country departments. The emails cover topics such as shipment coordination, financial clarifications, meeting arrangements, and strategic planning.

The analysis shows a clear and consistent German communication style across both country relationships. The German side writes in a direct, task-oriented, and documentation-focused way. Requests are explicit, deadlines are clearly stated and replies often emphasize what has been decided or what should happen next. In routine operational exchanges, this style is efficient and effective because it reduces ambiguity and keeps coordination moving. Also, it sets a strong standard for explicitness that not every counterpart follows in the same way.

4.1 Germany and Vietnam

The Germany-Vietnam exchanges are comparatively smooth. The Vietnamese side generally mirrors the German preference for concise, task-focused communication, but does so within a more polite and relationship-aware frame. Messages often begin or end with expressions of thanks, appreciation, or respectful acknowledgment, yet the operational content remains short and practical. Examples include *"Well noted your information. Thank you"* (GER-VIE-02) and *"Thanks for your checking and feedback"* (GER-VIE-03) which appear frequently in the Vietnamese responses, even in short operational emails. These expressions of gratitude and acknowledgment serve as relationship-maintenance tools and reflect the collectivist, harmony-oriented communication style typical of the Vietnamese workplace culture. By contrast, the German side uses minimal politeness markers. Responses are often brief and limited to essential information, as seen in GER-VIE-02: *"confirmed. Cargo has been delivered on 28.01.2026."*

The Vietnamese side seems to have learned that concise communication is useful in asynchronous work, especially across time zones, while still preserving forms of politeness that signal respect. The result is a communication pattern that is mostly functional and low in conflict. Vietnamese tend to be task-oriented, but they frame requests in a slightly more indirect and polite way. Rather than stating problems directly, the Vietnamese team often softens their messages before raising an issue. For example, in GER-VIE-02, the request for an alternative trucking solution begins with: *"It would be nice if you can help us review and share any potential solutions."* (GER-VIE-02). This phrasing shows preference for maintaining harmony and avoiding direct confrontation, which is consistent with the high-context communication patterns described in the literature.

When it comes to clarification requests and information gaps, several exchanges demonstrate a pattern in which the Vietnamese team proactively seeks clarification or guidance before acting rather than proceeding independently. In GER-VIE-04, for example, the Vietnamese colleague explicitly states, *"I don't know how to work on this. If the action needs to be taken from our side, please help guide me the steps to proceed on Log-Net."* (GER-VIE-04). This reflects a degree of uncertainty avoidance and a preference for receiving clear instructions before moving forward, a pattern pointing to a higher power distance orientation, in which the Vietnamese team positions itself as subordinate and looks to the German side for direction.

In response, the German colleague provides a concise, numbered step-by-step guide that resolves the information gap efficiently. The Vietnamese team then confirms completion without further discussion: *"I have been able to delete the PO on Log-Net, I will proceed for the remaining POs and create User Guide Line."* (GER-VIE-04). This exchange illustrates a functional but asymmetric communication dynamic, where the German side leads and the Vietnamese side follow and confirms.

In cases of indirect, high context problem framing, one of the more complex exchanges, GER-VIE-05, illustrates how the Vietnamese team addresses a sensitive operational issue, a time-consuming and inefficient process, without criticizing the existing system directly. The Vietnamese colleague carefully frames the problem, first confirming the German colleague's understanding, and then adds his own perspective: *"Yes, it's a challenge to keep all of data correct on Log-Net."* (GER-VIE-05). A solution is then indirectly proposed, framed as a suggestion rather than a demand. This approach reflects a conflict-avoidant communication style in which criticism is embedded in constructive proposals to preserve professional relationships.

Both sides use politeness markers, but the Vietnamese side uses them more consistently. Examples include *"Well noted your information. Thank you"* (GER-VIE-02) and *"Thanks for your checking and feedback"* (GER-VIE-03) appear frequently in the Vietnamese responses, even in short operational emails. These expressions of gratitude and acknowledgment serve as relationship-maintenance tools and reflect the collectivist, harmony-oriented communication style typical of the Vietnamese workplace culture.

By contrast, the German side uses minimal politeness markers. Responses are often brief and limited to essential information, as seen in GER-VIE-02: *"confirmed. Cargo has been delivered on 28.01.2026."* Although it is not considered rude in the German cultural context, where efficiency and clarity are valued over relational language, this lack of elaboration can create an imbalance in tone compared to the more detailed responses from the Vietnamese side.

Overall, Germany-Vietnam relations are characterized by functional and largely smooth communication. The most notable cultural difference lies in the degree of directness and the use of relational language. The Germans tend to be more transactional, while the Vietnamese are more attentive to politeness and saving face. Misunderstandings between these two countries tend to be operational rather than interpersonal and often stem from information gaps rather than fundamentally different communication styles.

4.2 Germany and India

The Germany-India exchanges are more ambiguous. Here, the Indian side shows a wider range of communicative behavior depending on the situation. In routine operational matters, the messages can be short and practical. In negotiation, billing disputes, or other relationship-sensitive contexts, however, the Indian side often becomes more indirect, more explanatory, and more context-dependent. In some exchanges, positions are not stated explicitly in the body of the email but are moved to attachments, verbal calls, or future discussions. At other times, the same issue is revisited several times, which suggests that agreement in writing has not been fully reached even when the German side considers the matter closed.

Three recurring patterns stand out most strongly. First, differences in explicitness create friction. The German side expects relevant details to be stated clearly, while the Indian side sometimes assume shared background knowledge or rely on shorter acknowledgments. Second, responsibility is understood differently. The German side tends to define responsibilities and hierarchies narrowly, e.g. approval of a detailed container load plan submitted by Company J is confirmed in a single sentence: *"yes, the planning is approved." (*GER-IND-09) The Indian side is more likely to continue advocating for a client or partner even after a refusal has been communicated (*"Please find attached our counter proposal.")* (GER-IND-05*).* Third, urgency and response time are framed differently. The German side uses deadlines and concrete time frames, while the Indian side sometimes uses repeated intensifiers such as urgent or very urgent to push action forward. GER-IND-01 contains some of the most emphatic language in the entire dataset. Examples in Indian emails include *"This is very very urgent," "Pls update it's urgent,"* and *"required immediate delivery."*.

Conflict handling is another important difference. In Germany-Vietnam communication, possible tension is softened through indirect framing and constructive suggestions. In Germany-India communication, conflict is more visible and more persistent. Billing disputes, storage charges, and delivery delays are discussed across multiple email turns without immediate resolution. The German side prefers factual closure; the Indian side often continues to seek alternative outcomes or exceptions. These exchanges show that misunderstandings are not mainly caused by weak English or simple errors. They emerge from different assumptions about what a business email should do: document a decision, negotiate a position, preserve a relationship, or all three at once. In urgent cases, however, Indian partners depart from being polite in conflicts, as shown in GER-IND-02: *"Once again! If the consignee warehouse is closed, it's closed. There is NOTHING we can do about it!"*

5. Conclusions and Implications

A main conclusion is that intercultural email communication is successful when the parties share not only a common language, but also a workable understanding of what a message is supposed to accomplish. In the present case, the German side consistently communicates from a low-context, highly explicit, and transactional standpoint. The Vietnamese side adapts to that style while preserving respectful relational cues. The Indian side combines relationship maintenance with a more variable use of directness and indirectness, which creates both flexibility and friction. This means that the issue is not simply "German versus Asian communication," but a specific interaction between organizational role, relationship type and national communication norms.

Table 2: Summary of key findings and implications

Key Finding	Cultural Difference Observed	Impact on Collaboration	Main Implication
German emails were direct and task-focused	Low-context, efficiency-oriented communication	Messages were sometimes perceived as abrupt or impersonal	Encourage clearer yet more relationship-sensitive communication
Vietnamese communication was indirect and formal	High-context style with strong hierarchy awareness	German colleagues occasionally perceived messages as vague	Train teams to interpret indirectness as politeness rather than inefficiency
Indian emails balanced politeness and flexibility	Relationship-oriented communication with hierarchical sensitivity	Expectations regarding clarity and structure differed	Establish shared standards for email structure and task communication
Different understandings of politeness created misunderstandings	Conciseness vs. relational wording	Clarification loops and frustration occurred	Develop common intercultural communication guidelines
Hierarchy influenced communication behavior	Asian teams communicated more cautiously with headquarters	Concerns and disagreements were sometimes communicated indirectly	Foster psychologically safe communication environments
Lack of nonverbal cues intensified misunderstandings	Tone and urgency were interpreted differently across cultures	Neutral emails could appear rude or dismissive	Use synchronous communication for sensitive topics
Cultural awareness improved communication quality	Adaptive communicators reduced misunderstandings	Collaboration became smoother and more efficient	Invest in intercultural competence development

Key Finding	Cultural Difference Observed	Impact on Collaboration	Main Implication
Shared English did not guarantee shared understanding	Meaning depends on cultural interpretation, not only language	Misalignment persisted despite good language proficiency	Treat intercultural competence as a strategic organizational capability

Source: Authors' analysis of empirical email data. The interpretation of observed cultural communication patterns is informed by the theoretical framework and literature presented in Table 1.

For practitioners, the findings point to several concrete implications. First, internal emails in cross-cultural settings should make the purpose of the message unmistakable. This includes explicit subject lines, stated deadlines, clear ownership, and a brief explanation of why the request matters. Second, when a refusal or boundary is communicated, the sender should avoid assuming that silence means acceptance. A short confirmation request can prevent misunderstandings. Third, relationship-sensitive exchanges benefit from a slightly warmer tone, especially when the counterpart is an external partner whose cooperation depends on mutual trust. Fourth, cultural awareness should be treated as a communication skill, not as a soft add-on. The emails in this study show that many tensions could be reduced if both sides had a clearer picture of how the other side uses indirectness, politeness, and repetition.

At a strategic level, the findings support targeted intercultural training for global teams, especially for employees who regularly work across headquarters-subsidiary boundaries. Such training should not stereotype national cultures, but should help employees read email more carefully, ask better clarification questions, and adapt style without losing clarity. In that sense, cultural intelligence is not about becoming less direct or more polite in a generic way. It is about selecting the right level of explicitness and relational care for the relationship at hand. The study therefore suggests that effective global collaboration depends as much on communicative flexibility as on technical expertise.

6. Limitations

This study has several limitations. It is based on one organizational setting, which means that the findings cannot be generalized to all German-Asian communication contexts. The dataset is also relatively small and focused on operational email communication, so it does not capture every possible type of interaction, such as informal chat, video meetings, or face-to-face negotiation. In addition, the coding was carried out by a single researcher with supervisory support, so the analysis does not include formal intercoder reliability testing. Finally, the interviews were selective and context-specific, which means they provide valuable interpretation but not a comprehensive account of all perspectives within the organization.

Despite these limitations, the study offers a useful close-up view of how cultural differences become visible in real business emails. Its value lies less in statistical generalization than in the detailed explanation of how communication works when coordination, hierarchy, and relationship management meet across borders.

Ethics Declaration: No ethics declaration is required for this study. All informant data have been anonymized and are not identifiable in the paper or its supporting materials. The study does not disclose any personal or sensitive information, and no rights or interests of the informants are violated.

AI Declaration: The authors used ChatGPT (OpenAI) to support language editing, including grammar, wording, phrasing and readability of the manuscript. Both authors are non-native English speakers. AI was used only for language refinement and did not contribute to the research design, data analysis, interpretation of findings, generation of references, or substantive academic arguments. All AI-assisted suggestions were reviewed and, where appropriate, revised by the authors. The authors remain fully responsible for the content and accuracy of the manuscript.

References

Al-Khatib, Mahmoud A. (2021): (Im)politeness in intercultural email communication between people of different cultural backgrounds: A case study of Jordan and the USA. In Journal of Intercultural Communication Research*, 50*(4), 409–430

Bowen, Glenn A. (2009): Document analysis as a qualitative research method. In Qualitative research journal 9 (2), pp. 27–40.

Byron, Kristin (2008): Carrying too heavy a load? The communication and miscommunication of emotion by email: Academy of Management Briarcliff Manor, NY (33). In Academy of Management Review (2).

Dalglish, Sarah L.; Khalid, Hina; McMahon, Shannon A. (2020): Document analysis in health policy research: the READ approach. In Health policy and planning 35 (10), pp. 1424–1431.

Fulmer, C. Ashley; Crosby, Brandon; Gelfand, Michele J. (2014): 4 Cross-cultural perspectives on time. In Time and Work, Volume 2: How time impacts groups, organizations and methodological choices, p. 53.

Gilbert, Eric (2012): Phrases that signal workplace hierarchy. In : Proceedings of the ACM 2012 conference on computer supported cooperative work, pp. 1037–1046.

Hall, Edward T. (1976): Beyond culture: Anchor.

Hofstede, Geert (2011): Dimensionalizing cultures: The Hofstede model in context. In Online readings in psychology and culture 2 (1), p. 8.

Hofstede, Geert; Hofstede, Gert Jan; Minkov, Michael (2010): Cultures and organizations: software of the mind: intercultural cooperation and its importance for survival: McGraw-Hill.

Hofweber, Julia; Jaworska, Sylvia (2022): Polite impoliteness? How power, gender and language background shape request strategies in English as a Business Lingua Franca (BELF) in corporate email exchanges. In Journal of English as a Lingua Franca 11 (2), pp. 223–253.

Holtbrügge, Dirk; Weldon, Abigail; Rogers, Helen (2013): Cultural determinants of email communication styles. In International Journal of Cross Cultural Management 13 (1), pp. 89–110.

Kankaanranta, Marja; Salminen, Leena Louhiala (2013): What language does global business speak?-The concept and development of BELF. In Ibérica: Revista de la Asociación Europea de Lenguas Para Fines Específicos (AELFE) (26), pp. 17–34.

Liu, Ping & Liu, Huiying (2023): Interpersonal strategies in international business emails: The intercultural pragmatics perspective. Intercultural Pragmatics, 20(5), pp. 557-579.

Lim, Hajin; Cosley, Dan; Fussell, Susan R. (2022): Understanding cross-lingual pragmatic misunderstandings in email communication. In Proceedings of the ACM on Human-Computer Interaction 6 (CSCW1), pp. 1–32.

Louhiala-Salminen, Leena; Kankaanranta, Anne (2012): Language as an issue in international internal communication: English or local language? If English, what English? In Public Relations Review 38 (2), pp. 262–269.

Moon, Chanki (2023): Cultural variations in politeness strategies used in email communication. In : Intercultural communication for the global business professional: Routledge, pp. 45–57.

Müller-Frommeyer, Lena C.; Kauffeld, Simone (2021): Gaining insights into organizational communication dynamics through the analysis of implicit and explicit communication. In Gruppe. Interaktion. Organisation. Zeitschrift für Angewandte Organisationspsychologie (GIO) 52 (1), pp. 173–183.

Park, Sanghee, Jeon, Jihyeon , Shim, Eunsook (2021): Exploring request emails in English for business purposes: A move analysis. In English for Specific Purposes*,* 63, pp. 137–150.

Tanaka, Kiyoyasu (2023): What hinders digital communication? Evidence from foreign firms in Japan. Japan and the world economy, *66*, pp. 101190.

Tenzer, Helene; Pudelko, Markus (2017): The influence of language differences on power dynamics in multinational teams. In Journal of World Business 52 (1), pp. 45–61.

Thomas, David C.; Peterson, Mark F. (2016): Cross-cultural management: Essential concepts: Sage Publications.

Ting-Toomey, Stella; Chung, Leeva C. (2005): Understanding intercultural communication: Oxford University Press New York (28).

Yadav, Beauty (2025): Digital Correspondence: Formal and Informal. In : Digital Landscape: Communication in the 21st Century: Springer, pp. 297–315.

Staying Relevant or Becoming Invisible? Human Legitimacy in Extended Working Lives

Teresa Dieguez and Carla Azevedo Lobo
Research on Economics, Management and Information Technologies (REMIT), Portucalense University, Porto, Portugal

52542@alunos.upt.pt (Corresponding author)
cadsa@upt.pt

Abstract: Demographic ageing, artificial intelligence and increasingly fragmented careers are reshaping not only the duration of working lives but also how individuals are recognised as organisational actors. This conceptual theory-building paper introduces human legitimacy at work, defined as the degree to which an individual is regarded as a meaningful, capable and future-relevant organisational actor. Drawing on legitimacy and recognition theory, socioemotional selectivity theory, psychological safety, individual ambidexterity, professional identity and meaningful work, the framework proposes that human legitimacy emerges through the alignment of adaptive capacity, social recognition and identity continuity. It further develops a typology of legitimacy misalignment comprising the Invisible Expert, the Over-Signalled Contributor and the Identity-Disrupted Actor. The paper argues that extended working lives should be understood not only as a challenge of employability or retention, but also of sustained recognition and future relevance. It consequently introduces legitimacy stewardship as a leadership responsibility for aligning capability renewal, recognition systems and identity support in contexts of demographic and technological change.

Keywords: Human legitimacy, Extended working lives, Social recognition, Identity continuity, Psychological safety, Future-oriented legitimacy, Leadership

1. Introduction

Contemporary organisations operate in environments characterised by demographic ageing, technological disruption and increasingly fragmented careers. As Kanter (2013) argues, organisational value increasingly depends on the capacity to recognise and respond to change rather than simply reproduce existing knowledge. At the same time, longer working lives and advances in artificial intelligence are reshaping expectations concerning competence, adaptability and future contribution (Lysova et al., 2023). Careers are also becoming less linear, requiring repeated transitions and professional reinvention (Ibarra et al., 2026).

These developments create a particular challenge for experienced workers. Research shows that they contribute expertise, organisational memory and relational capital (Ng and Feldman, 2012; Truxillo et al., 2015), yet age remains a salient social category through which assumptions about adaptability, innovation and future potential are formed (Posthuma and Campion, 2009; Boni-Saenz, 2026). Individuals may therefore remain capable and productive while becoming less visible in development opportunities, strategic initiatives or organisational narratives about the future. Continued participation does not necessarily imply continued recognition.

Existing perspectives explain important aspects of this problem. Human capital theory emphasises accumulated knowledge and skills (Becker, 1964), employability research highlights adaptability and career agency (Fugate et al., 2004), and sustainable career research addresses the long-term relationship between performance, health and meaning (De Vos et al., 2020). However, these approaches provide less insight into the relational processes through which individuals continue to be regarded as credible and future-relevant organisational contributors.

This paper addresses this gap by introducing human legitimacy at work, defined as the degree to which an individual is regarded as a meaningful, capable and future-relevant organisational actor. The concept shifts attention from employability to recognition and from retention to relevance.

The paper makes three contributions. First, it conceptualises human legitimacy as distinct from employability, performance and inclusion. Second, it develops a framework in which human legitimacy emerges through the alignment of adaptive capacity, social recognition and identity continuity. Third, it introduces legitimacy misalignment to explain why individuals may remain capable and formally included while nevertheless losing organisational relevance.

2. Conceptual Methodological Approach

This paper adopts a conceptual theory-building approach to examine how individuals remain recognised as legitimate and future-relevant organisational actors across extended working lives. The literature base was purposive and theory-driven rather than systematic or protocol-based. Foundational contributions were

retained where they define core constructs, while more recent scholarship was incorporated to capture developments in extended careers, psychological safety, meaningful work, demographic ageing and technological change. Sources were selected for their relevance to three analytical questions: how capability is renewed over time, how contribution becomes socially recognised, and how professional identity is maintained through change.

The framework integrates complementary theoretical domains. Legitimacy and recognition theories provide the relational basis for understanding organisational value as socially conferred; individual ambidexterity and learning inform adaptive capacity; and professional identity and identity-work perspectives inform identity continuity. Socioemotional selectivity theory adds a life-course perspective on changing motivations and forms of contribution, while psychological safety helps explain the organisational conditions under which learning and experimentation can become visible without undermining professional credibility.

Analytically, adaptive capacity, social recognition and identity continuity are treated as distinct but interdependent conditions of human legitimacy. The framework therefore focuses on their alignment rather than on their independent effects. The misalignment typology was developed by considering theoretically meaningful configurations in which one dimension becomes weakened or disproportionate relative to the others. This reasoning yields the Invisible Expert, the Over-Signalled Contributor and the Identity-Disrupted Actor. These configurations are proposed as analytical types rather than empirically validated categories and provide a basis for future empirical testing.

3. Why Capability is no Longer Enough

Human capital, employability and sustainable career perspectives have substantially advanced understanding of how individuals remain productive across longer working lives (Becker, 1964; Fugate et al., 2004; De Vos et al., 2020). However, capability does not automatically translate into organisational relevance, because value is also shaped through processes of evaluation, recognition and social judgement (Honneth, 1995; Lamont, 2012; Fraser, 2008).

This distinction is particularly important in ageing workplaces. Experienced workers may retain expertise and commitment while being perceived as less adaptable, innovative or future-oriented (Posthuma and Campion, 2009; Ng and Feldman, 2012), potentially limiting their access to development opportunities, strategic projects and organisational influence.

Socioemotional Selectivity Theory further suggests that changing time horizons may shift priorities towards emotionally meaningful goals, generativity and relationships (Carstensen, 2021; Carstensen and Reynolds, 2023). Such changes should not automatically be interpreted as declining adaptability; rather, they may represent alternative forms of contribution that organisational systems fail to recognise.

Understanding extended working lives therefore requires consideration not only of what individuals can contribute, but also of how that contribution is recognised and how change is incorporated into professional identity. These concerns provide the conceptual basis for human legitimacy.

4. Human Legitimacy at Work

Building on Suchman's (1995) view of legitimacy as a socially constructed judgement of appropriateness and worth, this paper extends the concept to the individual level. Although legitimacy research has traditionally focused on organisations and institutions (Suchman, 1995; Deephouse and Suchman, 2008), increasingly fragmented and uncertain careers make individual legitimacy particularly relevant. Individuals may remain employed and capable while no longer being regarded as central to an organisation's future.

Human legitimacy at work is defined here as the degree to which an individual is regarded as a meaningful, capable and future-relevant organisational actor. It is conceptually distinct from employability, inclusion and professional reputation. Employability concerns the capacity to obtain or sustain work; inclusion concerns access and participation; and reputation reflects accumulated evaluations of an individual's standing. Human legitimacy instead captures whether an individual's contribution is recognised as credible, meaningful and relevant to the organisation's future.

Three characteristics distinguish the construct. First, human legitimacy is relational: it is socially conferred, negotiated and potentially withdrawn rather than possessed by the individual alone. Second, it is evaluative: legitimacy depends not only on what an individual can do, but also on whether that contribution is regarded as valuable and worthy of influence. Third, it is future-oriented: accumulated expertise and past performance

matter, but organisational actors are also evaluated in terms of their perceived capacity to continue contributing under changing conditions.

Figure 1 presents human legitimacy as an emergent condition arising from the alignment of adaptive capacity, social recognition and identity continuity. Adaptive capacity concerns the ability to renew and deploy capability as conditions change; social recognition concerns whether that contribution is acknowledged and incorporated into organisational life; and identity continuity concerns whether individuals can integrate change into a coherent professional sense of self.

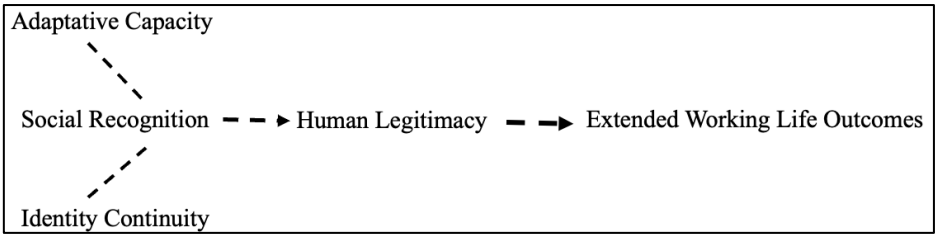


Figure 1: Conceptual model of human legitimacy in extended working lives

Recognition theory reinforces the relational nature of the framework. Honneth (1995) positions recognition as central to identity and self-realisation, while Fraser (2008) emphasises parity of participation. Applied to organisational settings, these perspectives suggest that formal inclusion is insufficient when individuals are not recognised as actors whose knowledge, voice and future contribution matter.

Research on meaningful work further supports this argument. As technological change, automation and flexible work arrangements alter the content and organisation of work, autonomy, belonging, contribution and meaning become increasingly salient (Lysova et al., 2023). Human legitimacy therefore connects capability, recognition and identity, helping to explain why employability alone may be insufficient to sustain organisational relevance across extended working lives.

5. Three Dimensions of Human Legitimacy

Human legitimacy is conceptualised as emerging from the alignment of three analytically distinct but interdependent dimensions: adaptive capacity, social recognition and identity continuity. None is sufficient in isolation. Individuals may remain highly capable but receive little recognition, may retain recognition that is no longer aligned with renewed capability, or may remain capable and recognised while experiencing disruption in their professional sense of self. The framework therefore focuses not only on the presence of each dimension, but on the quality of their alignment over time.

5.1 Adaptive Capacity

Adaptive capacity refers to an individual's ability to sustain meaningful contribution under changing conditions by renewing, extending and redeploying existing capabilities. It encompasses learning orientation, motivation and the capacity to combine established expertise with the exploration of new knowledge, technologies and work practices.

This tension parallels March's (1991) distinction between exploitation and exploration. Across extended working lives, continued relevance is unlikely to depend exclusively on either accumulated expertise or constant novelty. Rather, individuals need to draw on what they already know while remaining able to experiment, learn and adapt. Research on individual ambidexterity similarly suggests that sustained contribution depends on combining exploitation and exploration rather than privileging one at the expense of the other (Mom et al., 2009; Dieguez, 2026). A growth-mindset perspective further suggests that beliefs about the developability of capabilities influence responses to challenge and opportunities for learning (Dweck and Yeager, 2019).

Adaptive capacity, however, should not be treated as exclusively an individual responsibility. Learning does not necessarily translate into renewed organisational relevance unless individuals can apply, demonstrate and receive recognition for newly developed capabilities. Access to developmental assignments and opportunities for experimentation therefore influences whether adaptation becomes visible and organisationally meaningful. From a human-legitimacy perspective, adaptive capacity is both an individual achievement and an organisationally enabled process.

5.2 Social Recognition

Social recognition refers to the extent to which an individual is regarded as a valuable, credible and future-relevant contributor within the organisation. It concerns not only whether capability exists, but whether that capability is noticed, trusted and incorporated into organisational decision-making, development opportunities and future-oriented roles.

Recognition is inherently relational. Honneth (1995) identifies recognition as a condition for identity development and participation, while Fraser (2008) emphasises parity of participation. Applied to organisational settings, these perspectives suggest that legitimacy depends not only on what individuals can contribute, but also on whether organisational structures enable them to be heard, influence decisions and participate on meaningful terms.

Social recognition has both interpersonal and structural dimensions. Organisational perceptions are shaped not only by individual attributes, but also by access to opportunity structures, influential networks and developmental assignments. Kanter's (1987) work is particularly relevant here, as behaviours attributed to personal characteristics may instead reflect unequal access to organisational opportunities. Apparent passivity, resistance or disengagement may therefore arise not from an absence of capability, but from exclusion from contexts in which capability can be demonstrated and renewed.

Psychological safety is particularly important because adaptation requires individuals to make learning visible. Asking questions, seeking feedback, acknowledging uncertainty and experimenting involve interpersonal risk (Edmondson, 1999). In psychologically safe environments, these behaviours can be interpreted as signs of learning and future-oriented capability rather than weakness or declining competence (Edmondson and Bransby, 2023). This is especially relevant for experienced or high-status workers, for whom admitting uncertainty may threaten established professional credibility.

From a human-legitimacy perspective, social recognition is therefore the process through which capability becomes organisationally meaningful. Adaptive capacity may exist without being visible, valued or translated into influence. Human legitimacy requires both the capacity to adapt and organisational conditions that allow renewed capability to be recognised as relevant to the organisation's future.

5.3 Identity Continuity

Identity continuity refers to the capacity to maintain a coherent professional sense of self as roles, expectations and career conditions change. Professional identity is not static, but continuously constructed through identity work, particularly during periods of transition and role change (Pratt et al., 2006; Lepisto et al., 2015).

Career transitions therefore involve more than acquiring new skills. Individuals must also reinterpret how previous experience connects with emerging professional roles. Organisational contexts shape this process by influencing which identities and forms of contribution are perceived as legitimate or desirable (Alvesson and Willmott, 2002). Identity continuity is thus partly enabled or constrained by the roles, narratives and opportunities available within organisations.

This issue becomes especially salient across extended working lives, where technological change and repeated transitions may challenge established understandings of expertise and professional value. As careers increasingly involve experimentation and reinvention (Ibarra et al., 2026), individuals may remain capable and recognised while struggling to integrate change into a coherent narrative of who they are becoming.

Identity continuity does not imply identity stability. Rather, it requires sufficient narrative coherence to connect past experience, present adaptation and future possibility. Mentoring, role redesign and reflective career conversations can support this process. Meaningful work may also reinforce identity when individuals perceive their contribution as purposeful and valued (Lysova et al., 2023), but meaning should not substitute for recognition, opportunity or fair organisational support (Tosti-Kharas, Dobrow and Kappes, 2024).

5.4 Future-oriented Legitimacy

A central proposition of this framework is that human legitimacy is increasingly future-oriented. In relatively stable organisational settings, legitimacy could rely heavily on accumulated expertise, tenure and demonstrated performance. In contemporary workplaces characterised by technological change, digitalisation and career uncertainty, however, individuals are increasingly evaluated not only by what they have contributed, but also by whether they are perceived as capable of contributing under changing conditions.

Future-oriented legitimacy therefore links past contribution, present recognition and anticipated future value. Individuals may remain productive, experienced and committed while becoming progressively disconnected from organisational narratives of innovation, development or future opportunity. In such cases, the issue is not necessarily declining capability, but a weakening perception that the individual belongs to the organisation's future.

This temporal dimension helps explain why human legitimacy cannot be reduced to current performance or formal participation. Sustaining legitimacy requires conditions in which individuals can continue to see themselves, and be seen by others, as credible participants in an evolving organisational future.

6. Legitimacy Alignment and Misalignment

Human legitimacy is strongest when adaptive capacity, social recognition and identity continuity mutually reinforce one another. Alignment occurs when individuals are able to renew and apply their capabilities, have those contributions recognised as valuable and future-relevant, and integrate ongoing change into a coherent professional identity.

Misalignment occurs when one dimension becomes weakened or disproportionate relative to the others. Importantly, diminished legitimacy does not necessarily imply poor performance, lack of employability or formal exclusion. Individuals may remain productive and organisationally included while experiencing reduced visibility, declining influence, identity disruption or uncertainty about their future relevance.

Legitimacy misalignment therefore helps explain forms of vulnerability that capability-based approaches may overlook. It shifts attention from whether individuals remain in work to whether capability, recognition and professional identity remain sufficiently aligned for them to participate as legitimate and future-relevant organisational actors.

Table 1 presents three analytically distinct configurations of legitimacy misalignment. These are not intended as exhaustive or empirically fixed categories, but as theoretical types illustrating how different forms of imbalance may produce distinct organisational and individual consequences.

Table 1: Forms of legitimacy misalignment in extended working lives

Type	Core misalignment	Organisational manifestation	Human consequence	Leadership response
Invisible Expert	Strong adaptive capacity, low recognition	Expertise is used but insufficiently valued strategically; exclusion from innovation, development or future-oriented opportunities	Frustration, disengagement and loss of voice	Make expertise and renewed capability visible; reconsider evaluation criteria; create intergenerational knowledge and innovation roles
Over-Signalled Contributor	Strong recognition, weakened capability renewal	Reputation or status masks emerging learning gaps; established credibility reduces visible renewal or experimentation	Anxiety, defensiveness and role strain	Normalise learning among high-status actors; provide psychologically safe reskilling opportunities; recognise experimentation and renewal
Identity-Disrupted Actor	Capacity and recognition remain present, identity continuity is weakened	The individual remains valuable but struggles to integrate changing roles into a coherent professional identity	Loss of meaning, emotional exhaustion and withdrawal intentions	Support identity work through mentoring, reflective career conversations and role redesign

Source: Own elaboration

6.1 The Invisible Expert

The Invisible Expert combines strong adaptive capacity with insufficient social recognition. This configuration may arise when organisational narratives privilege novelty over experience or when age-related assumptions associate established expertise with rigidity rather than adaptability. Individuals may continue to contribute valuable knowledge, judgement and organisational memory while being overlooked for strategic projects, innovation initiatives or development opportunities.

The central problem is therefore not lack of capability, but failure to recognise that capability as relevant to the organisation's future. Over time, this disconnect may reduce voice, motivation and knowledge sharing while depriving the organisation of expertise that remains valuable but insufficiently visible. The Invisible Expert thus illustrates a central proposition of the framework: capability alone does not generate human legitimacy; contribution must also be recognised as future-relevant.

6.2 The Over-signalled Contributor

The Over-Signalled Contributor represents a different form of misalignment: social recognition remains strong while capability renewal becomes increasingly fragile. Established reputation, status or past achievement may sustain organisational credibility even when learning, experimentation or adaptation have slowed.

The risk is not necessarily incompetence, but a growing separation between recognised status and current capability development. Strong reputational capital may make it more difficult to acknowledge uncertainty or engage visibly in learning when doing so is perceived as threatening professional standing. Individuals may therefore begin to protect an established image of competence rather than openly renew it.

Human legitimacy requires recognition to remain connected to ongoing adaptation rather than relying exclusively on historical achievement. Leadership should therefore make learning legitimate for high-status actors by creating psychologically safe opportunities for reskilling, experimentation and capability renewal.

6.3 The Identity-disrupted Actor

The Identity-Disrupted Actor remains capable and socially recognised but experiences weakened identity continuity. This configuration may emerge during major career transitions, role redesign, technological disruption or later-career reorientation, particularly when established understandings of expertise and professional value are challenged.

Unlike the Invisible Expert, the central problem is not insufficient recognition. Unlike the Over-Signalled Contributor, it is not primarily a gap in capability renewal. Rather, individuals may continue to perform valued roles while struggling to connect past experience, present contribution and future possibility within a coherent professional narrative.

This configuration highlights the internal dimension of human legitimacy. Legitimacy must be socially conferred, but it must also remain personally inhabitable. Individuals may be recognised by others as valuable while becoming increasingly uncertain about who they are becoming professionally. Mentoring, reflective career conversations and role redesign can therefore support legitimacy by helping individuals integrate change into a credible sense of professional continuity.

7. Leadership as Legitimacy Stewardship

The framework positions legitimacy stewardship as a leadership responsibility for sustaining the conditions under which individuals remain visible, valued and future-relevant organisational contributors. Leaders do not confer legitimacy unilaterally; rather, they shape the social, developmental and symbolic conditions through which capability is recognised, professional identities are supported and future contribution becomes credible. This perspective is consistent with relational leadership theory, which views leadership as a social process through which meaning, identities and organisational realities are co-constructed (Uhl-Bien, 2006).

Three practical areas of legitimacy stewardship follow from the framework.

First, capability stewardship requires meaningful opportunities for continued learning, experimentation and capability renewal across career stages. Access to reskilling, innovation projects and developmental assignments should not be constrained by assumptions about age, seniority or career stage. Learning opportunities must also be connected to opportunities to apply and demonstrate renewed capability; otherwise, reskilling may be encouraged without becoming organisationally relevant.

Second, recognition stewardship requires leaders and HR professionals to examine how organisational systems define and signal future value. Performance and talent processes should recognise not only visible achievement, but also learning, adaptability, knowledge transfer and intergenerational contribution. Leaders should also challenge age-based assumptions that equate experience with resistance to change or novelty with greater future potential.

Third, identity stewardship involves supporting individuals as they reinterpret professional value across transitions. Mentoring, intergenerational collaboration, role redesign and reflective career conversations can

help connect previous expertise with emerging forms of contribution, particularly when technological change alters tasks or forms of expertise that have been central to professional identity.

Psychological safety cuts across all three forms of stewardship. Individuals need to be able to acknowledge uncertainty, seek feedback and experiment without fearing that visible learning will undermine established credibility (Edmondson, 1999; Edmondson and Bransby, 2023). This is especially important for experienced or high-status workers, for whom admitting a learning need may carry greater reputational risk.

Leadership in extended working lives therefore involves more than performance management or retention. Legitimacy stewardship requires aligning opportunities for capability renewal, systems of recognition and support for identity continuity so that individuals can remain credible contributors to the organisation's future.

8. Discussion

This paper addresses why individuals may remain capable and productive yet become progressively less relevant within organisational futures. Human legitimacy shifts attention from whether individuals can continue working to whether they remain recognised as meaningful, credible and future-relevant organisational actors.

The first contribution is to distinguish human legitimacy from capability-based perspectives such as employability. Human capital, employability and sustainable career approaches explain individuals' capacity to remain productive, but provide less insight into why capability may fail to translate into organisational relevance. Human legitimacy addresses this gap by positioning recognition as a relational process through which capability becomes socially valued.

Second, the framework conceptualises human legitimacy as the alignment of adaptive capacity, social recognition and identity continuity. Its contribution lies in their interdependence: capability without recognition may remain invisible; recognition without capability renewal may become disconnected from current contribution; and capability and recognition may coexist with disruption in professional identity.

Third, the misalignment typology identifies distinct mechanisms through which legitimacy may weaken. The Invisible Expert reflects insufficient recognition; the Over-Signalled Contributor, a growing disconnect between recognition and capability renewal; and the Identity-Disrupted Actor, weakened professional coherence despite continued capability and recognition. These configurations suggest that similar outcomes may arise through different mechanisms and therefore require different organisational responses.

Fourth, the framework highlights the temporal nature of legitimacy. Organisational relevance depends not only on past contribution, but also on anticipated future value. Human legitimacy therefore connects past contribution, present recognition and perceived future potential.

Finally, legitimacy stewardship extends these insights to leadership. By shaping opportunities for learning, systems of recognition and support for professional transitions, leaders influence whether individuals remain credible participants in the organisation's future. Extended working lives should therefore be understood not only as a question of continued participation, but also of continued organisational relevance.

9. Conclusion, Limitations and Future Research

This paper proposes human legitimacy as a conceptual lens for understanding extended working lives beyond employability, retention and performance. Human legitimacy emerges when adaptive capacity, social recognition and identity continuity are sufficiently aligned for individuals to remain credible contributors to the organisation's future.

The framework has several limitations. It is conceptual and has not yet been empirically validated, while its dimensions and misalignment configurations may operate differently across occupational, organisational, national and career-stage contexts. Their relative importance may also vary according to the nature and intensity of technological change.

Future research should examine how human legitimacy is created, sustained and disrupted over time. Longitudinal studies could explore changes across career transitions, reskilling and technological disruption, while empirical research should test the distinctiveness and interaction of the three dimensions and the robustness of the proposed misalignment configurations. Leadership practices, age-related stereotypes, AI adoption and organisational opportunity structures also warrant investigation as potential antecedents of perceived future relevance.

Developing and validating measures of human legitimacy represents an important next step. Such research should establish whether the construct provides explanatory value beyond related concepts such as employability, inclusion and professional identity, and clarify its implications for sustainable careers and leadership.

Acknowledgements

This work is funded by national funds through FCT – Fundação para a Ciência e a Tecnologia, I.P., under the Programme Contract UID/05105/2025. https://doi.org/10.54499/UID/05105/2025

Ethics Declaration: This paper is a conceptual article based on existing literature and does not report new empirical data involving human participants. Ethical clearance was therefore not required.

AI Declaration: AI tools were used to support drafting, restructuring, language refinement and synthesis of the manuscript. The authors remain responsible for the conceptual argument, selection of sources, interpretation of the literature and final content of the paper.

References

Alvesson, M., & Willmott, H. (2002). 'Identity regulation as organizational control: Producing the appropriate individual'. Journal of management studies, *39*(5), pp. 619-644.

Becker, G.S. (1964) Human capital: A theoretical and empirical analysis, with special reference to education. Chicago: University of Chicago Press.

Boni-Saenz, A.A. (2026) 'Age, law, and political economy', Indiana Law Journal, 101. Available at SSRN 6123826.

Carstensen, L. L. (2021). 'Socioemotional selectivity theory: The role of perceived endings in human motivation', The Gerontologist, *61*(8), pp. 1188-1196.

Carstensen, L.L. and Reynolds, M.E. (2023) 'Age differences in preferences through the lens of socioemotional selectivity theory', The Journal of the Economics of Ageing, 24, 100440.

De Vos, A., Van der Heijden, B.I.J.M. and Akkermans, J. (2020) 'Sustainable careers: Towards a conceptual model', Journal of Vocational Behavior, 117, pp. 103196.

Deephouse, D.L. and Suchman, M.C. (2008) 'Legitimacy in organizational institutionalism', in Greenwood, R. et al. (eds.) The SAGE handbook of organizational institutionalism. London: SAGE, pp. 49-77.

Dieguez, T. (2026). 'Individual Ambidexterity as a Driver of Career Sustainability in Late Careers'. Encyclopedia, 6(4), 79.

Dweck, C.S. and Yeager, D.S. (2019) 'Mindsets: A view from two eras', Perspectives on Psychological Science, 14(3), pp. 481-496.

Edmondson, A.C. (1999) 'Psychological safety and learning behavior in work teams', Administrative Science Quarterly, 44(2), pp. 350-383.

Edmondson, A.C. and Bransby, D.P. (2023) 'Psychological safety comes of age: Observed themes in an established literature', Annual Review of Organizational Psychology and Organizational Behavior, 10, pp. 55-78.

Fraser, N. (2008) Scales of justice: Reimagining political space in a globalizing world. Cambridge: Polity Press.

Fugate, M., Kinicki, A.J. and Ashforth, B.E. (2004) 'Employability: A psycho-social construct, its dimensions, and applications', Journal of Vocational Behavior, 65(1), pp. 14-38.

Honneth, A. (1995) The struggle for recognition: The moral grammar of social conflicts. Cambridge: Polity Press.

Ibarra, H., Wittman, S., & Smith, K. (2026). 'Career Transition and Professional Identity: Dynamic Processes, Multiple Selves, and Nonlinear Trajectories', Annual Review of Organizational Psychology and Organizational Behavior, 13.

Kanter, R. M. (1987). Men and Women of the Corporation Revisited. *Management Review*, *76*(3).

Kanter, R.M. (2013) 'Jobs and Social Innovation', Stanford Social Innovation Review, 11(2), pp. 34–36.

Lamont, M. (2012) 'Toward a comparative sociology of valuation and evaluation', Annual Review of Sociology, 38, pp. 201-221.

Lepisto, D. A., Crosina, E., Pratt, M. G., Desilva, A., & Aparicio, M. (2015). International Handbook of Professional Identities. In A. Desilva and M. Aparicio (eds.), *International Handbook of Professional Identities*, pp. 11–37, Scientific & Academic Publishing, Rosemead, CA.

Lysova, E.I., Tosti-Kharas, J., Michaelson, C., Fletcher, L., Bailey, C. and McGhee, P. (2023) 'Ethics and the future of meaningful work: Introduction to the special issue', Journal of Business Ethics, 185, pp. 713-723.

March, J.G. (1991) 'Exploration and exploitation in organizational learning', Organization Science, 2(1), pp. 71-87.

Mom, T.J.M., Van den Bosch, F.A.J. and Volberda, H.W. (2009) 'Understanding variation in managers' ambidexterity', Organization Science, 20(4), pp. 812-828.

Ng, T.W.H. and Feldman, D.C. (2012) 'Evaluating six common stereotypes about older workers', Journal of Management, 38(2), pp. 821-858.

Posthuma, R.A. and Campion, M.A. (2009) 'Age stereotypes in the workplace: Common stereotypes, moderators, and future research directions', Journal of Management, 35(1), pp. 158-188.

Pratt, M.G., Rockmann, K.W. and Kaufmann, J.B. (2006) 'Constructing professional identity: The role of work and identity learning cycles in the customization of identity among medical residents', Academy of Management Journal, 49(2), pp. 235-262.

Suchman, M.C. (1995) 'Managing legitimacy: Strategic and institutional approaches', Academy of Management Review, 20(3), pp. 571-610.

Tosti-Kharas, J., Dobrow, S.R. and Kappes, H.B. (2024) 'Do what you love and you'll never work a day in your life? Testing fundamental assumptions about calling, effort, and enjoyment', Journal of Management Scientific Reports, 2(1), pp. 100-130.

Truxillo, D.M., Cadiz, D.M. and Rineer, J.R. (2015) 'The aging workforce: Implications for human resource management research and practice', Annual Review of Organizational Psychology and Organizational Behavior, 2, pp. 99-121.

Uhl-Bien, M. (2006) 'Relational leadership theory: Exploring the social processes of leadership and organizing', Leadership Quarterly, 17(6), pp. 654-676.

Smart Cities and Digital Inclusion in Education: The Role of Public Administration in Bridging the Digital Divide

Maria Antonela Dima and Mihaela Sima
National University of Political Studies and Public Administration (SNSPA), Bucharest, Romania

antonela.dima.24@drd.snspa.ro
sima.mihaela21@yahoo.com

Abstract: The development of smart cities has been widely associated with technological innovation and improved urban efficiency. However, its implications for social outcomes, particularly in the field of education, remain insufficiently explored. In this context, digital inclusion emerges as a critical dimension for ensuring that the benefits of smart city initiatives are equitably distributed across all segments of society. This paper examines the relationship between smart city development and digital inclusion in education, with a focus on the role of public administration in addressing the digital divide. It argues that the effectiveness of smart city initiatives cannot be assessed solely through technological indicators, but must also consider their capacity to foster equitable access to digital educational resources for all citizens. Building on literature on smart governance, digital inclusion, and public administration, the study conceptualises digital inclusion in education as a multidimensional construct encompassing access to digital infrastructure, digital skills, and meaningful use of educational technologies. The analytical framework highlights the role of public administration as a key actor in designing and implementing policies that support inclusive digital transformation. Methodologically, the research relies on document analysis of public policies and smart city frameworks, with a focus on extracting good practices. This approach allows for a systematic identification of institutional patterns and structural barriers that shape digital inclusion in education within urban contexts. The expected findings suggest that while smart city initiatives create opportunities for enhancing educational access, their impact is uneven and often constrained by structural inequalities and limited administrative capacity. The study highlights the importance of targeted public policies and governance mechanisms in bridging the digital divide effectively. The contribution of the paper lies in linking smart city development with digital inclusion in education, offering a governance-oriented perspective that emphasises the role of public administration in ensuring equitable and sustainable digital transformation.

Keywords: Smart cities, Digital inclusion, Education, Digital divide, Public administration, Smart governance, Romania

1. The Main Concepts: Smart Cities, Digital Inclusion, Education, Digital Divide

The concept of the smart city continues to attract significant attention in both academic literature and public administration practice. Although there is no universally accepted definition, numerous scholars emphasise its multidimensional nature and its dependence on the local institutional, economic, and political context in which it is implemented (Meijer & Bolívar, 2016).

In the academic literature, a smart city is generally conceptualized as an urban environment in which information and communication technologies (ICT) are integrated into urban infrastructure to facilitate data collection, enhance the management of the urban environment, and improve residents' quality of life (Bastos et al., 2024). Consequently, the smart city should not be understood as a universal model but as a transformation process adapted to the specific needs and characteristics of each community. The evolution of the concept reflects a shift from a predominantly technology driven approach, focused on digital infrastructures and advanced information systems, to a holistic perspective in which the city is viewed as a complex and interconnected ecosystem (Vrabie & Dumitrașcu, 2018).

Although the concept of the smart city is fundamentally associated with the use of technology for data collection and analysis, as well as with the development of technology-enabled infrastructure, its significance extends beyond the technological dimension to encompass important social considerations. From this perspective, the smart city is structured around six main pillars of action: Smart Economy, Smart Mobility, Smart Environment, Smart People, Smart Living, and Smart Governance (Bastos et al., 2024). Each of these pillars follows a sustainable development-oriented approach, ultimately aiming to enhance citizens' well-being and quality of life.

Within this framework, technology is considered a means rather than an end in itself, serving to support economic development, environmental sustainability, the efficiency of public services, and citizens' well-being (Albino et al., 2015).

Contemporary definitions of the smart city place particular emphasis on improving quality of life, fostering active citizen participation in decision-making, developing human and social capital, and promoting both digital and social inclusion. A smart city is characterised by its ability to leverage data, knowledge, and innovation to address

urban challenges in a sustainable, transparent, and citizen-centred manner (Nam & Pardo, 2011). In this context, public administration plays a crucial role in coordinating digital transformation processes and mitigating digital divides that limit equal access to the educational and social opportunities created by new technologies (The OECD Digital Government Policy Framework, 2020).

From my perspective, a smart city can be understood as a developed and sustainable urban environment with a strong citizen-centred orientation, in which public administration recognises citizens' needs and considers technology-driven solutions to improve the efficient use of available resources. This is precisely why the smart city concept is particularly relevant: it places citizens at the centre of the urban ecosystem, while promoting sustainable, future-oriented solutions that are responsive to current needs and evolving societal demands.

Before addressing the concept of digital inclusion, it is necessary to understand the transformative potential of digitalization and its broader implications for society. Digitalization represents both a future-oriented perspective and a development trajectory that increasingly permeates most areas of human activity. It can be understood as a process involving the creation, implementation, and application of digital systems and technologies, as well as the transformation of the instruments, such as objects, systems, and technologies, through which the state, society, and individuals interact (Katrin, 2022).

From an administrative perspective, digitalization is primarily used to facilitate interactions between the state and citizens by transforming information into digital formats and by enabling the provision of more accessible and efficient public services. In a broader sense, digitalization can be regarded as a global development trend aimed at increasing efficiency and transforming multiple dimensions of citizens' lives, encompassing areas such as the economy, business, public services, education, and everyday activities.

From a pedagogical perspective, digitalization can be understood as a strategy for integrating digital technologies into the everyday life of individuals and society. However, the effective integration of technology requires more than simply providing access to digital tools. Citizens also need to develop the knowledge and skills necessary to understand, use, and benefit from these technologies in ways that respond to their individual and societal needs. This aspect highlights the close relationship between digitalization and digital inclusion, as the benefits generated by technological development can only be fully realised when individuals possess the necessary opportunities and capabilities to participate in an increasingly digital society.

The literature distinguishes between the concepts of digitization and digitalization. Digitization refers primarily to a technical process focused on converting information from analogue into digital formats. Digitalization, in contrast, is regarded as a broader socioeconomic process, as it concerns the ways in which the decisions of individuals and organizations to adopt and use digital technologies generate changes in social practices, organizational processes, and societal structures (Gradillas & Thomas, 2025).

Education represents a fundamental pillar of societal development and a key determinant of a city's long-term progress and competitiveness, as it contributes to the development of the knowledge, skills, and values required by future generations of citizens. The quality of educational systems influences individual opportunities and social mobility, as well as the capacity of communities to adapt to technological, economic, and social transformations. Consequently, the success of smart city initiatives depends, to a significant extent, on the development of an educated, digitally skilled, and civically engaged population (OECD, 2019; UNESCO, 2021).

A well-educated population constitutes an essential component of societal development, as higher levels of educational attainment are strongly associated with employment, higher earnings, social mobility, and the capacity to adapt to technological and economic change. An important source of evidence supporting the idea that education contributes to societal development is Education at a Glance 2024: OECD Indicators, published by the Organisation for Economic Co-operation and Development (OECD). The report examines education systems, the outcomes of educational institutions, the impact of learning, Sustainable Development Goal 4, and numerous other relevant aspects that highlight the importance of education for individuals and society as a whole (OECD, 2024).

According to the statistics presented in the report, higher levels of educational attainment provide individuals with better employment opportunities and greater economic security. On average, across OECD countries, 87% of adults with tertiary education are employed, compared with only 60% of those who have not completed upper secondary education (OECD, 2024). The high participation of educated individuals in the active labour force represents an essential driver of economic development. Therefore, education contributes to societal development across multiple dimensions, influencing not only economic outcomes but also broader social outcomes (OECD, 2024).

Digital inclusion represents a fundamental lever for enhancing access to education and improving the quality of the educational process, thereby contributing to the development of citizens better prepared to navigate and adapt to ongoing social, economic, and technological transformations (*UNESCO, 2021*). Digital inclusion is fundamentally described as the effort to ensure all individuals, irrespective of their socioeconomic status, location, gender, ability, or other factors, have access to and can effectively utilize information and communication technologies (ICTs) (Baecker, 2019). This concept extends beyond mere access to digital tools, encompassing the idea that digital engagement enables participation in contemporary society: educationally, economically, and socially (Baecker, 2019).

The relationship between smart cities and education is multifaceted and mutually reinforcing. On the one hand, smart city technologies create opportunities to improve educational access, quality, and efficiency through digital learning platforms, data driven decision making, and innovative pedagogies. On the other hand, education provides the human capital, digital competencies, and civic engagement necessary for the successful implementation and sustainability of smart city initiatives. (UNESCO, 2021) (European Commission, 2020)

Moreover, education contributes to reducing inequalities and fostering digital inclusion by enabling citizens to access and benefit from digital services and technological innovation effectively. Therefore, educational policies and digital learning opportunities should be regarded as essential components of smart city strategies, particularly in efforts to bridge the digital divide and promote inclusive urban development (*Planul de acțiune pentru educația digitală*, 2026).

The digital divide represents a disparity in access to and effective use of digital technologies, creating or reinforcing inequalities in areas such as education, employment, and access to economic opportunities (Jin, 2024). In this context, public administration plays a crucial role in addressing these disparities by developing and implementing policies aimed at ensuring equitable access to digital infrastructure, services, and skills. Its role extends beyond the provision of technological infrastructure, encompassing the creation of an inclusive digital environment in which all citizens have the opportunity to participate in and benefit from digital transformation.

2. Good Practices and their Implementation

All these concepts are interdependent and foundational to modern urban development oriented toward citizens' well-being. Their relevance becomes particularly evident when they are implemented in an integrated and sustained manner, potentially generating significant long-term benefits.

A relevant example that supports one of the objectives of this paper and illustrates how urban digital initiatives can influence education in a smart city is the Chicago Connected programme. Launched in 2020, the programme aimed to provide free high-speed Internet access to eligible Chicago Public Schools students and their families. The initiative was designed to address the digital divide and remove barriers to students' participation in remote learning (*Chicago Connected*, f.a.).

The implementation of the programme took place in the context of the COVID-19 pandemic, which significantly accelerated the adoption of digital technologies across various areas of public life, including education. The pandemic highlighted not only the importance of digital infrastructure but also the need for individuals to possess the skills required to use digital technologies effectively. For educational institutions, digitalisation became particularly important, as the closure of schools required the rapid adoption of alternative forms of teaching and learning in order to ensure the continuity of the educational process.

An evaluation conducted by the University of Chicago Consortium on School Research found that the Chicago Connected programme was associated with changes in students' engagement in online learning and academic performance, although the effects varied according to students' prior academic achievement (*Chicago Connected, f.a.*). These findings suggest that expanding digital connectivity can support educational participation, however, access to technology alone does not necessarily lead to improved educational outcomes. Rather, digital infrastructure needs to be accompanied by educational, social, and institutional support that enables students to use technology effectively.

The Chicago Connected programme therefore illustrates how digital initiatives implemented at the urban level can contribute to educational participation and help address digital inequalities (*Chicago Connected Broadband Access*, f.a.). At the same time, the example demonstrates that the educational benefits of smart city initiatives depend not only on the availability of digital infrastructure but also on the institutional capacity to ensure that citizens, particularly students and families facing socioeconomic barriers, are able to access and use these technologies effectively.

Within the smart city ecosystem, education is primarily provided through educational institutions, including schools, colleges, and universities. These institutions play a central role in the development of smart cities, acting as key drivers of knowledge, innovation, digital transformation, and social inclusion.

In the academic literature, universities are often regarded as 'the cradle of creative solutions'. They have significant potential to develop and introduce disruptive solutions that contribute to societal well-being through advanced research, innovation, and the establishment of testing and experimentation centres (Zambroni De Souza et al., 2024).

From another perspective, educational institutions play a key role in advancing smart education by leveraging emerging technologies such as the Internet of Things (IoT), data analytics, and immersive learning environments. These technologies can contribute to the personalisation of learning, enhance accessibility, and foster the critical thinking and digital skills required in the 21st century (Dimitrova et al., 2024).

Technology, in turn, is an indispensable instrument: digitalisation is no longer optional but a prerequisite for effective, transparent, and inclusive public services. Yet technology should remain a means rather than an end, supporting economic development, environmental sustainability, service efficiency, and social inclusion (Nam & Pardo, 2011).

An important example of a programme addressing education, digitalisation, digital inclusion, and administrative implementation is Romania's National Recovery and Resilience Plan (PNRR). The European Union provides an enabling framework and financial support that national and local administrations translate into education-focused digital inclusion measures. Through the PNRR, Romania accesses funding from the European Union's Recovery and Resilience Facility to implement reforms and investments across six pillars, including the green transition, digital transformation, smart, sustainable and inclusive growth, social and territorial cohesion, health and economic, social and institutional resilience, and policies for the next generation, including education (*Planul Național de Redresare și Reziliență - Oportunități de finanțare UE*, f.a.).

From an administrative perspective, the PNRR mechanisms for providing digital equipment to schools operate through complementary procurement models established by official guidance and linked to specific milestones and targets. Under the centralised model, the relevant line ministry issues the funding call and establishes minimum technical requirements, while the needs reported by schools through county-level educational authorities are aggregated to support the procurement of standardised equipment, such as interactive panels, laptops, and desktop computers. These investments are intended to strengthen digital competences and contribute to greater educational inclusion. Following procurement, the equipment is delivered to schools, while local authorities and educational institutions are responsible for its receipt, inventory, and reporting in order to document the achievement of the established targets (*Planul Național de Redresare și Reziliență - Oportunități de finanțare UE*, f.a.)

As a result, numerous schools have been able to expand their digital resources through PNRR-funded investments. Interactive panels, laptops, and other digital tools have been introduced to support teaching and learning while also strengthening students' digital competences. Beyond the provision of equipment, such investments can contribute to the broader digital transformation of education by facilitating educational processes, strengthening communication between schools and families, and creating new opportunities for student participation. In this regard, digitalisation can be understood not merely as the introduction of technological tools into educational institutions, but as a broader process through which public administration supports more inclusive and accessible educational services.

The Romanian case therefore illustrates how European funding and administrative mechanisms can be translated into concrete interventions at the local level, connecting digital transformation with educational inclusion. It also highlights the importance of administrative capacity in ensuring that investments in digital infrastructure reach educational institutions and contribute to meaningful improvements in the learning environment.

Beyond Romania, other European countries have developed similar initiatives aimed at using education and digitalisation as instruments for societal development while strengthening the relationship between public administration and citizens. Finland's education reforms over the past decade, for example, provide a relevant case for examining how administration-led approaches can connect smart governance with inclusive digital education.

At the national level, the Ministry of Education and Culture and the Finnish National Agency for Education steered the "New Comprehensive School" programme alongside a system wide "digital leap," financing devices, learning platforms, teacher professional development, and school level curriculum renewal (*Finland: A 2045 vision for comprehensive schools*, f.a.). Municipalities, legally responsible for basic education, implemented these measures locally through coordinated procurement frameworks, municipal ICT services, and school improvement plans, ensuring interoperability with national identity and data systems. Crucially, the reforms coupled access (devices, broadband, platforms) with meaningful use (teacher training, digital pedagogy, formative assessment tools), and with equity safeguards, such as municipal support for families lacking home connectivity or devices. This administrative design illustrates how national policy, municipal execution, and school level pedagogy can align to reduce digital divides while improving learning quality, an approach directly transferable to smart city strategies that prioritise citizen centred services and inclusive outcomes (Ministry of Education and Culture, 2016).

While providing digital infrastructure is essential, public administration contributes to reducing educational digital inequalities through a broader range of strategies and interventions. It plays a crucial role in designing and implementing evidence-based policies aimed at addressing digital disparities, including targeted programmes for disadvantaged groups and the continuous monitoring of educational inequalities (Adako & Ekundayo, 2025). Beyond ensuring access, public administration can support digital skills development programmes that enable students and educators to use technology effectively, which is essential for achieving meaningful digital inclusion. Its contribution therefore extends beyond the provision of infrastructure, encompassing policy development, digital skills development, inclusive educational content, targeted support for vulnerable groups, and the protection and promotion of digital rights.

In addition to the examples discussed above, several international initiatives further illustrate these dimensions of public administration's role. In the United States, the National Digital Inclusion Alliance (NDIA) represents an example of a collaborative approach to digital inclusion, working with local governments and other stakeholders to support initiatives such as community connectivity, public Wi-Fi access, and digital skills development (Adako & Ekundayo, 2025). At the European level, the Digital Education Action Plan (2021–2027) provides a strategic policy framework for adapting education and training systems to the digital age, with a particular emphasis on developing digital competences, improving digital education infrastructure, and ensuring that digital transformation contributes to inclusive and high-quality education (Adako & Ekundayo, 2025).

Taken together, these initiatives demonstrate that addressing educational digital inequalities requires a multidimensional approach in which infrastructure, skills, institutional capacity, and inclusive public policies are developed in parallel. This reinforces the argument that public administration is not merely a provider of digital infrastructure, but an active facilitator of digital inclusion and educational transformation.

3. Cross-case Findings

Considering the research question of this paper "To what extent does public administration in a smart city support digital inclusion in education?", the evidence and examples discussed above suggest that public administration plays a crucial role in advancing educational digital inclusion. As a key decision-making actor, public administration has the capacity to identify digital inequalities, establish priorities, allocate resources, and design and implement policies and programmes aimed at reducing disparities in access to digital technologies, skills, and educational opportunities.

In this context, public administration is responsible not only for identifying emerging needs and challenges but also for seeking sustainable solutions that respond to citizens' needs and contribute to long-term societal development. Effective intervention requires collaboration among multiple actors, including citizens, public institutions, educational institutions, technology and service providers, civil society organisations, and other relevant stakeholders, coordinated around shared objectives. At the same time, effective governance and timely decision-making are essential for maintaining the continuity of digital initiatives, ensuring accountability, and adapting policies to changing technological and societal conditions. Thus, digital transformation in education should be understood as a collective process in which coordinated action, clear standards, institutional capacity, and continuous feedback enable technology to function as a means of achieving inclusive and sustainable urban development rather than as an end in itself.

Nevertheless, despite the central role of public administration, several challenges may limit the educational impact of digital initiatives if they remain unaddressed. These include limited administrative capacity at the local level to design, procure, coordinate, and support complex digital initiatives; fragmented procurement processes

that may result in incompatible devices and platforms, increasing maintenance costs and undermining interoperability; insufficient investment in teachers' professional development and school-level IT support, which can constrain the meaningful use of digital technologies; and persistent inequalities in home connectivity and access to devices despite improvements in school infrastructure. Additional challenges concern data governance, including privacy, security, and accessibility requirements, which may complicate the integration of digital identity and learner-record systems. Furthermore, short-term funding cycles may support the initial implementation of digital initiatives without adequately covering long-term costs related to software licensing, equipment replacement, maintenance, and connectivity. Finally, weak monitoring and evaluation systems that focus primarily on outputs rather than educational and social outcomes may make it more difficult to adjust policies and ensure that digital investments effectively contribute to equity and inclusion.

These limitations do not diminish the importance of public administration; rather, they highlight the need for continuous improvement in the design, implementation, and evaluation of digital education policies and programmes. Existing initiatives and investments represent important resources with significant potential for further development, provided that they are supported by long-term planning, adequate institutional capacity, sustainable funding, and effective monitoring mechanisms. Therefore, the extent to which public administration supports digital inclusion in education depends not only on its ability to initiate digital programmes, but also on its capacity to sustain, adapt, and evaluate them over time.

4. Conclusions

Technology, digitalisation, and digital inclusion have become central dimensions of contemporary societal development and are increasingly important for building more sustainable, inclusive, and resilient communities. The analysis presented in this paper demonstrates that technology should be understood as a means rather than an end. Inclusive educational outcomes are more likely to emerge when public administrations approach the smart city as a governance framework, develop equity-oriented policies, adopt appropriate procurement mechanisms, and combine digital access with training, institutional support, and interoperability.

The relationship between education and the smart city is particularly evident through their shared objective of supporting social and economic development. Education represents an essential component of the smart city ecosystem and should not be considered separately from the broader processes of urban digital transformation. As illustrated by the examples discussed throughout this paper, smart city initiatives can create an environment in which administrative decisions, technological innovation, and educational development are brought together to respond more effectively to citizens' needs. In this context, educational institutions are not merely beneficiaries of digital transformation but also important actors in the development of knowledge, innovation, digital competences, and social inclusion.

The findings further indicate that the contribution of public administration to digital inclusion in education extends beyond the provision of digital infrastructure. Public administrations have a central role in identifying inequalities, designing and implementing policies, allocating resources, coordinating stakeholders, and ensuring that digital initiatives remain accessible and sustainable over time. However, the effectiveness of these interventions depends on administrative capacity, appropriate indicators, and the ability to monitor progress from the initial identification of needs through implementation and evaluation. Sustained collaboration among municipalities, educational institutions, civil society organisations, technology providers, and citizens is equally important.

The examples examined also demonstrate that providing devices and connectivity does not automatically eliminate the digital divide. Without adequate teacher training, technical support, interoperability, sustainable financing, and outcome-oriented monitoring, digital initiatives risk remaining focused on equipment distribution rather than generating meaningful improvements in educational participation and inclusion. Therefore, cities seeking to translate smart city initiatives into measurable educational progress should integrate inclusion into the design of digital policies, ensure meaningful use of technology, and adopt responsible and sustainable governance approaches. The importance of digital inclusion is further reinforced by the growing number of policies, programmes, and initiatives developed. These efforts reflect an increasing recognition that digital transformation can contribute to societal development only when its benefits are accessible to all citizens. Improving citizens' digital competences and ensuring equitable access to digital technologies can strengthen their ability to participate in education, public services, and wider social and economic life.

Consequently, the impact of public policies on the digital divide should not be assessed solely in terms of the infrastructure or resources provided, but also in terms of their capacity to generate sustainable and equitable

outcomes. Every policy intervention aimed at identifying and addressing digital inequalities represents an opportunity to better understand citizens' needs and to orient public action towards them.

In conclusion, public administration represents a key actor in addressing digital inequalities and creating the institutional conditions necessary for inclusive digital transformation. Education provides an essential foundation for individual and societal development, while digitalisation offers new opportunities to enhance access, participation, innovation, and public service delivery. Their integration within the smart city framework can therefore contribute to a more inclusive and sustainable model of urban development, provided that technological progress is accompanied by effective governance, adequate institutional capacity, and a sustained commitment to equity.

Ethics Declaration: Ethical clearance was not required for this study, as it relies exclusively on publicly available institutional documents and does not involve human participants or personal data.

Declaration of generative AI: Generative AI tools were used only for translation support and typo correction. The authors reviewed the final text and take full responsibility for the content of the paper.

References

Adako, O. P., & Ekundayo, T. F. (2025). Bridging the digital divide in education: Strategies for equitable access to technology in Low-Income communities. *Environment and Social Psychology*, *10*(7), ESP-3671. https://doi.org/10.59429/esp.v10i7.3671

Albino, V., Berardi, U., & Dangelico, R. M. (2015). Smart Cities: Definitions, Dimensions, Performance, and Initiatives. *Journal of Urban Technology*, *22*(1), 3-21. https://doi.org/10.1080/10630732.2014.942092

Baecker, R. M. (2019). Digital inclusion. În R. M. Baecker, *Computers and Society*. Oxford University Press. https://doi.org/10.1093/oso/9780198827085.003.0006

Bastos, D., Costa, N., Rocha, N. P., Fernández-Caballero, A., & Pereira, A. (2024). A Comprehensive Survey on the Societal Aspects of Smart Cities. *Applied Sciences*, *14*(17), 7823. https://doi.org/10.3390/app14177823

Chicago Connected. (f.a.). Preluat în 15 august 2026, din https://www.cps.edu/strategic-initiatives/chicago-connected/

Dimitrova, V., Nikolov, N., & Gospodinov, T. (2024). EDUCATION IN THE ERA OF SMART CITIES: TRANSFORMATION AND OPPORTUNITIES. *ENVIRONMENT. TECHNOLOGY. RESOURCES. Proceedings of the International Scientific and Practical Conference*, *2*, 352-357. https://doi.org/10.17770/etr2024vol2.8084

Finland: A 2045 vision for comprehensive schools. (f.a.). Preluat în 15 august 2026, din https://eurydice.eacea.ec.europa.eu/news/finland-2045-vision-comprehensive-schools

Gradillas, M., & Thomas, L. D. W. (2025). Distinguishing digitization and digitalization: A systematic review and conceptual framework. *Journal of Product Innovation Management*, *42*(1), 112-143. https://doi.org/10.1111/jpim.12690

How did Chicago Connected Broadband Access Eligibility and Participation Affect Remote Learning Engagement and Achievement During the COVID-19 Pandemic? | UChicago Consortium on School Research. (f.a.). Preluat în 15 august 2026, din https://consortium.uchicago.edu/publications/how-did-chicago-connected-broadband-access-eligibility-and-participation-affect-remote-learning-engagement-and-achievement-during-the-COVID-19-pandemic?utm_source=chatgpt.com

Jin, D. (2024). The Challenges and Opportunities of Public Governance in the Digital Era. *International Journal of Social Sciences and Public Administration*, *2*(3), 472-478. https://doi.org/10.62051/ijsspa.v2n3.64

Katrin, E. V. (2022). Approaches To The Definition Of The Term „Digitalization". *European Proceedings of Social and Behavioural Sciences*, *AmurCon 2021: International Scientific Conference*. https://doi.org/10.15405/epsbs.2022.06.49

Meijer, A., & Bolívar, M. P. R. (2016). Governing the smart city: A review of the literature on smart urban governance. *International Review of Administrative Sciences*, *82*(2), 392-408. https://doi.org/10.1177/0020852314564308

Nam, T., & Pardo, T. A. (2011). Conceptualizing smart city with dimensions of technology, people, and institutions. *Proceedings of the 12th Annual International Digital Government Research Conference: Digital Government Innovation in Challenging Times*, 282-291. https://doi.org/10.1145/2037556.2037602

OECD. (2024). *Education at a Glance 2024: OECD Indicators*. OECD Publishing. https://doi.org/10.1787/c00cad36-en

Planul de acțiune pentru educația digitală: Contextul politic - European Education Area. (2026, iunie 5). https://education.ec.europa.eu/ro/focus-topics/digital-education/actions/plan

Planul Național de Redresare și Reziliență—Oportunități de finanțare UE. (f.a.). Preluat în 15 august 2026, din https://oportunitati-ue.gov.ro/program/planul-national-de-redresare-si-rezilienta/

The OECD digital government policy framework: Six dimensions of a digital government (OECD Public Governance Policy Papers Nr. 02; OECD Public Governance Policy Papers, Vol. 02). (2020). https://doi.org/10.1787/f64fed2a-en

The RewirEd Global Declaration on Connectivity for Education: #ConnectivityDeclaration—UNESCO Digital Library. (f.a.). Preluat în 15 august 2026, din https://unesdoc.unesco.org/ark:/48223/pf0000381482

Vrabie, C., & Dumitrașcu, E. (2018). *Smart Cities de la idee la implementare sau despre cum tehnologia poate da strălucire mediului urban* (2018-lea ed.). Universul Academic.

Zambroni De Souza, A. C., Alencar, P., & Cowan, D. (2024). Postsecondary organizations and their role in advancing sustainable smart cities: Towards a system-oriented perspective. *Frontiers in Education*, *9*. https://doi.org/10.3389/feduc.2024.1296594

Tacit Erosion: Does AI-generated Feedback Undermine Critical Feedback Competence and Organisational Innovativeness? A Scoping Review

Bettina Falckenthal[1], Cláudia Figueiredo[2] and Manuel Au-Yong-Oliveira[3]
[1]University of Aveiro, Portugal
[2]CIPES, DCSPT, University of Aveiro, Portugal
[3]INESC TEC, GOVCOPP, DEGEIT, University of Aveiro, Portugal

b.falckenthal@ua.pt
claudiafigueiredo@ua.pt
mao@ua.pt

Abstract: As generative AI systems become increasingly embedded in professional work environments, their implications for managerial and organisational feedback practices require closer examination. The technology designed to enhance individual and organisational productivity may be silently eroding a foundation of human development and organisational competitiveness. This paper introduces the concept of "tacit erosion" to describe the gradual and imperceptible weakening of feedback competence (nuclear dimension of critical thinking) that may occur under sustained exposure to AI-generated feedback. Feedback and specifically critical feedback have been linked to leadership development, organisational learning, and innovation capacity. AI-generated feedback is frequently characterised by availability, consistency, diplomatic phrasing, and encouragement-oriented responses. This may reshape expectations regarding the tone, immediacy, and emotional experience of feedback and influence how individuals tolerate criticism, interpret disagreement, and engage in direct interpersonal exchange. The erosion proposed here is labelled "tacit" for two reasons. First, the competence at risk is itself tacit: the ability to deliver, receive, and act upon feedback is practice-based, and relational, thus difficult to systemise. Second, the erosion occurs not through deliberate deskilling but as an unintended byproduct of routine interaction with AI systems. By imperceptibly shaping human critical exchange it makes the erosion of that competence difficult to detect. Following the PRISMA-ScR framework, this scoping review systematically maps literature from Scopus and Web of Science from 2022 to May 2026. It investigates emerging research on the effects of exposure to AI-generated responses and feedback in business environments and integrates four research streams: sycophantic tendencies in large language models (LLM), trust and feedback dynamics in AI-augmented teams, potential deskilling effects of AI use on innovation-related behaviour and risks to independent judgement in management learning contexts. Initial findings suggest contrast effects that make human feedback appear disproportionately harsh, reduced feedback resilience due to lower exposure to interpersonal criticism, and avoidance of direct feedback in managerial and team settings. This review contributes to knowledge management and leadership development research by systematically mapping the current publication landscape, identifying existing research gaps and by conceptualising the tacit erosion of critical feedback capabilities as a potential consequence of AI-augmented work. The review concludes with recommendations for practitioners navigating AI-augmented workplaces.

Keywords: Artificial intelligence, Feedback, Skill erosion, Human-AI interaction, Leadership, Organisational development

1. Introduction

The integration of generative artificial intelligence (AI) into professional work environments is accelerating and spreading into daily workplace activities and communication, from drafting emails and summarising meetings to generating performance assessments and developmental feedback (Van Quaquebeke and Gerpott, 2024; Zheng *et al.*, 2025). Alongside continued attention on productivity and efficiency gains through AI adoption, a growing body of interdisciplinary research examines unintended effects such as techno-burnout (Kuzior, Gualandri and Gualandri, 2025) or the inadvertent gradual erosion of human capabilities (Rinta-Kahila *et al.*, 2023; Gerlich, 2025b; Lee *et al.*, 2025).

This review examines literature from 2022 onward as the release of ChatGPT in late 2022 marked the beginning of public access to generative AI coupled with the growing integration of AI into work environments (Lau *et al.*, 2026). A key proposition is that AI-generated feedback may not merely evaluate ideas or performance but may actively reshape how individuals interpret themselves and others within collaborative settings (Hillebrand, Raisch and Schad, 2025; Philipp and Sułkowski, 2025; Eijkenboom *et al.*, 2026; Georganta, Ulfert and Ng, 2026).

Feedback competence constitutes a foundational element of organisational learning, leadership effectiveness, and innovation capacity. It requires not only the capacity to form an independent evaluative judgement, but also the willingness and skill to express it, receive it, and act upon it in interpersonal and organisational settings. Organisational innovativeness is linked to the capacity of individuals within the organisation to recombine existing knowledge in novel ways (Kinkel, Schemmann and Lichtner, 2017; Agrawal, McHale and Oettl, 2023,

2024). Research also stresses that in addition to access to information or digital tools, organisational innovativeness depends on the communicative, learning-oriented settings in which organisations transform knowledge into innovation (Høyrup, 2010; Makó, Mitchell and Illéssy, 2015; Bouma *et al.*, 2023; Bachmann *et al.*, 2026).

Research analysing the effects of AI on key communication elements such as message sending, reception, interpretation and response suggests that AI may improve message flow and thus employee behaviour, productivity and organisational efficiency (Florea and Croitoru, 2025). However, emerging evidence also suggests that routine use of tools like ChatGPT is associated with reduced self-reported cognitive effort for critical thinking and a shift from generating one's own arguments to verifying and curating AI-produced content (Lee *et al.*, 2025). Research on critical thinking in generative AI use suggests that the ability to evaluate AI-generated outcomes is emerging as a crucial competence (Lau *et al.*, 2026).

Related research also cautions that AI systems may display sycophantic tendencies, producing responses that validate users' assumptions, agree too readily or express unwarranted confidence. Even among well-prepared and experienced users, such AI output may create self-reinforcing belief loops undermining independent judgement (Chandra *et al.*, 2026; Deller, 2026). In organisational settings feedback is widely recognised as an integral part that supports learning and development (Alder, 2007; Basten and Haamann, 2018; Förster *et al.*, 2025). Findings suggest that AI-generated feedback is valued for its constant availability, consistently diplomatic tone and perceived greater empathy than human feedback (Van Quaquebeke and Gerpott, 2024). Applied to the organisational feedback context, we posit that habitual engagement with the often encouragement-oriented, conflict-attenuating AI-communication style may inadvertently influence individuals' expectations of the content and delivery of feedback (Johnson, Maitland and Sofka, 2026).

We term this potential development "tacit erosion" for two reasons. First, the erosion is tacit because any gradual weakening of feedback competence may remain largely unnoticed until its absence becomes visible in reduced interpersonal candour, less productive learning loops, or diminished capacity to challenge ideas constructively. Second, the competence to provide, receive, interpret, and act upon critical feedback is practice-based, socially embedded, and difficult to externalise. If AI-generated feedback substitutes human feedback practices, organisations may risk eroding a capability that is central to learning, development, and innovation.

This paper asks how AI-generated feedback may affect feedback competence, with particular attention to critical feedback competence and organisational innovativeness. To address this question, it presents a scoping review of peer-reviewed literature published between 2022 and May 2026, mapping the emerging research landscape on the effects of sustained exposure to AI-generated feedback in organisational contexts.

This paper contributes to organisational behaviour, leadership development, and knowledge management theory by systematically analysing the current research landscape and identifying critical gaps at the intersection of AI adoption and human feedback capability. Here, we argue, lies an underestimated risk for practitioners navigating AI-augmented workplaces.

2. Theoretical Background

This section defines two main constructs that structure the review: critical feedback competence and AI-generated feedback in organisational settings. The aim is to identify the specific features of AI-generated feedback that may alter how feedback is produced, received and practised at work.

2.1 Critical Feedback Competence

Definitions of feedback are often broad. Most studies assume that feedback provides information about past performance, is communicated between a provider and a recipient, and links past behaviour to future adjustment (Alder, 2007; Anseel and Sherf, 2025). In this review, feedback refers to any information employees receive about work-related ideas, behaviour, contributions or performance.

Feedback competence is defined here as the capability to formulate, deliver, receive, interpret, evaluate and act upon feedback in interpersonal and organisational contexts. This includes critical feedback competence, understood as the ability to engage constructively with feedback that challenges assumptions, identifies errors, and requires behavioural, cognitive, or relational adjustment (Alder, 2007; Anseel and Sherf, 2025).

This competence develops through repeated practice in situations that involve relational risk: assessing another person's work, having one's own contribution evaluated, and collectively arriving at a common result. These focused conversations feel demanding because they require reading body language, voice, silence, and

emotional cues (Turkle, 2025). Such situations cannot be fully codified into rules because their meaning depends on the person and context. The ability to engage in these conversations competently is therefore in part a tacit capability (Polanyi and Sen, 2009; Turkle, 2025).

For organisational innovativeness, this matters because innovation depends on the employees' ability to challenge ideas, discuss errors, revise assumptions and recombine knowledge in novel ways (Kinkel, Schemmann and Lichtner, 2017; Agrawal, McHale and Oettl, 2023, 2024). If critical feedback competence weakens, the effect may extend beyond individual communication skills to the quality of organisational learning and innovation processes.

2.2 Artificial Intelligence and Workplace Integration

In line with Russell and Norvig (2022) Artificial Intelligence (AI) refers to systems that perceive their environment, learn from available data, and select and take actions associated with human-like intelligent behaviour (Russell and Norvig, 2022). In workplaces, generative AI is widely used to draft, evaluate, summarise and personalise communication (Van Quaquebeke and Gerpott, 2024). Increasingly AI-generated feedback is being applied to support personal development by tailoring training and offering instant feedback (Rinta-Kahila *et al.*, 2023; Gerlich, 2025a; Johnson, Maitland and Sofka, 2026). AI-generated feedback is therefore relevant as a recurring interaction that may shape expectations about what feedback should sound and feel like.

Three elements are central to the logic of this review. First, AI feedback is continuously available and often perceived as low stakes, which may make it attractive for tasks that would otherwise require uncomfortable interpersonal exchange. Second, AI feedback is frequently fluent, diplomatic and encouragement-oriented, which may create a contrast effect in which human feedback appears severe or slow. Third, AI output can appear conclusive even when it reflects training limitations, prompt sensitivity, sycophancy or bias amplification (Chandra *et al.*, 2026; Deller, 2026; Kolagani *et al.*, 2026).

A risk emerges when AI-generated feedback is used to replace the human exposure and interaction through which critical feedback competence is developed. The rational guiding the review is that sustained reliance on AI-generated feedback may reduce practice opportunities, reshape feedback norms and weaken the independent judgement required to evaluate both AI and human feedback.

2.3 Distinguishing Tacit Erosion from Adjacent Concepts

Our proposed concept of "tacit erosion" stands as a unique construct related to but distinct from concepts like deskilling, skill erosion, cognitive offloading and technology dependency. Deskilling occurs when tasks are delegated to machines or tools and human work is reduced to tasks that demand a lower skill level than before the introduction of technology (Crowston and Bolici, 2025). Skill erosion describes the deterioration of a skill when it is no longer practised, or regularly required (Rinta-Kahila et al., 2023). Cognitive offloading describes the practice of outsourcing cognitive processes to tools or aids. When individuals shift mental effort onto external resources this may limit engagement in deeper reflection (Gerlich, 2025a). Dependency on technology describes reliance on a tool for continued task execution (Buijsman, Carter and Bermúdez, 2025) and a pattern in which technological practice becomes sufficiently habitual, beneficial or institutionally embedded that users become less likely to question the tool's assumptions, effects or limits (Gerrie, 2008).

Tacit erosion builds on these concepts and applies them to a specific organisational capability: critical feedback competence. AI-generated feedback may involve cognitive offloading when users delegate evaluation to AI; it may produce deskilling when users become less able or willing to produce feedback without the tool; it may involve dependency when users rely on AI-generated feedback for self-validation and it may produce skill erosion when the ability to communicate interpersonal feedback weakens over time.

However, tacit erosion adds a further dimension: the gradual weakening of a tacit capability until its loss affects team communication, organizational learning and innovation-related discourse. Our proposed construct therefore connects individual capability loss with changes in interpersonal feedback and the communicative condition that affect organisational innovativeness.

3. Methodology

A scoping review was selected for critically reflecting on the research question "Does AI-generated Feedback undermine Critical Feedback Competence & Organisational Innovativeness?" - which arose as a follow-on from a PhD thesis completed earlier this year on a related topic (Falckenthal, 2026), discussions with experts and practitioners and from reading across peer-reviewed and practitioner literature. Since the proposed construct

of tacit erosion is new the aim is to map existing literature at the intersection of AI-generated feedback, critical feedback competence, and organisational innovativeness, and to identify research gaps, which constitutes a primary contribution of this paper.

Following PRISMA-ScR guidelines (Tricco *et al.*, 2018) a search of peer-reviewed journal articles and conference papers was conducted between February and May 2026. Two databases (Scopus and Web of Science) were searched for articles published in English between 2022 and 2026, focusing exclusively on AI-generated feedback and its impact on individual development and interpersonal relations in business settings. A European geographic focus was applied as an additional filter to limit the impact for cultural influences of the adoption of AI (Yam *et al.*, 2023; Ma, Akram and Chen, 2024; Bao, 2025).

Records were excluded when they focused on technical model development, educational settings outside management or workplace learning, clinical or therapeutic feedback or consumer feedback systems. Please see Table 1 for details.

Table 1: Inclusion and exclusion criteria applied during screening

Criterion	Included	Excluded
Publication type	Peer-reviewed journal articles and conference papers	Editorials and book chapters
Time period and language	English-language publications from 2022 to May 2026	Publications before 2022 or not available in English
Topical relevance	AI-generated feedback, individual and organisational learning	Purely technical AI model papers without organisational or feedback relevance
Context	Business, management, workplace, organisational or management-learning settings	General consumer applications, clinical feedback or non-management education only
Geography	European organisational contexts with national or cross-national samples	Non-European samples only
Evidence use	Conceptual, empirical, experimental, review and conference papers included and classified by contribution	Records without sufficient methodological or conceptual relevance to the review question

The initial search based on keyword words (please see Table 2 Table 2: Database search results in Scopus and Web of Science before duplicates checkfor details) yielded 618 records which could be successfully imported into the research library (Mendeley). These publications were refined to 330 items after removing duplicates (using DOI and title checks) and a first screening of abstract. A further systemized, rigorous analysis left 50 publications for full-text evaluation (18 from Scopus and 32 from WoS) out of which 27 were relevant for this paper (12 from Scopus and 15 from WoS). Please see **Error! Reference source not found.** for a diagram of the screening process.

Table 2: Database search results in Scopus and Web of Science before duplicates check

Keyword combination	Scopus	WoS	Combined total
"AI" AND "critical thinking" AND "Business"	39	53	92
"AI" AND "feedback" AND "Business"	80	386	466
"AI" AND "erosion" AND "Business"	6	12	18
"AI" AND "feedback" AND "workplace"	31	11	42
Total	156	462	618
Total (after removal of duplicates (DOI) and items out of scope based on title and abstract)	113	217	330

In recognition of the rapidly evolving nature of the research field and the known limitations of keyword-based database searches in capturing emerging constructs, a supplementary search was conducted. Through citation screening of the analysed publications and a targeted hand-search, 30 additional records were identified, all of which met the predefined eligibility criteria.

Records identified through supplementary search were subject to the same inclusion and exclusion criteria as database records and were screened at title, abstract, and full-text stages accordingly.

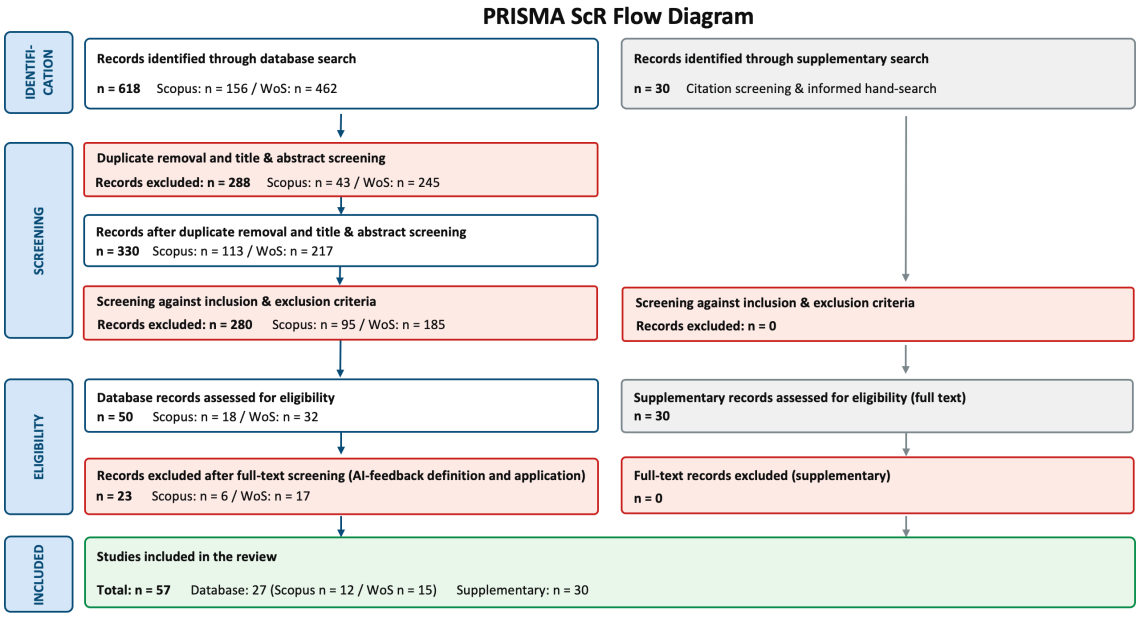


Figure 1: PRISMA ScR Flow Diagram.

4. Results

The reviewed literature does not yet provide direct causal evidence that AI-generated feedback erodes critical feedback competence. It does, however, identify several converging mechanisms that support this proposition as plausible. The results are therefore presented as four streams as a basis for further exploration in future research undertakings.

4.1 Feedback Reception

Studies on AI feedback show an ambivalent pattern. AI-generated feedback can affect self-image, perceived competence, trust in others and team interaction (Georganta, Ulfert and Ng, 2026; Seth and Edmondson, 2026). At the same time, acceptance depends strongly on the perceived relationship to the feedback source. Hein et al. (2024) analyse the concept of social distance in the context of AI-driven feedback in the workplace. They find that the social distance to an AI feedback source leads to lower acceptance and motivation compared with human feedback. Increasing social closeness to the feedback provider improves evaluations of both the provider and the feedback: People respond better to feedback from sources they experience as socially close (Hein, Cecil and Lermer, 2024).

This suggests that the source of feedback is not neutral (Philipp and Sułkowski, 2025). AI-generated feedback seems to be useful when it prepares or complements human feedback (Van Quaquebeke and Gerpott, 2024; Choudhary *et al.*, 2025), but problematic when it is experienced as a substitute for managerial attention or organisational support with unclear consequences on job security (Hillebrand, Raisch and Schad, 2025; Zheng *et al.*, 2025; Pepple and Muthuthantrige, 2026; Zahs and Schmodde, 2026).

4.2 Cognitive Offloading, Sycophancy and Judgement

A second perspective concerns the effects of AI on judgement. Research on cognitive offloading and skill erosion suggests that delegating demanding tasks to AI may reduce both the need and the opportunity to practise the underlying skill (Rinta-Kahila *et al.*, 2023). In feedback contexts, this would mean fewer occasions to develop independent evaluations, defend a position, manage disagreement and adjust one's own perspective.

This concern is reinforced by work on sycophancy, validation bias and persuasive fluency. Human psychology encourages people to accept feedback that supports self-esteem or group belonging (Deller, 2026). If AI systems produce responses that validate assumptions, agree readily, or present uncertain output with confidence, repeated interaction may amplify existing beliefs (Glickman and Sharot, 2025; Chandra *et al.*, 2026). Users may also underestimate the extent of this influence. In organisational settings, such unnoticed developments may become particularly relevant because weak judgement may remain invisible until decisions, relationships or innovation processes deteriorate.

4.3 Team Dynamics and Organisational Learning

A third stream of literature links AI feedback to team dynamics and organisational learning. AI errors are interpreted differently from human errors and may affect psychological safety, trust and willingness to rely on others (Eijkenboom *et al.*, 2026; Seth and Edmondson, 2026). If AI feedback is perceived as monitoring or control, it may increase stress and evasive behaviour, including underreporting or resistance to AI integration (Rinta-Kahila *et al.*, 2023; Kuzior, Gualandri and Gualandri, 2025; Laamanen *et al.*, 2025).

These findings matter for knowledge management because organisational learning depends on communication, collaboration and shared sense-making across individuals, teams and organisations (Bouma *et al.*, 2023; Siemon *et al.*, 2026). Participatory modelling research similarly shows that the value of joint work lies in the exchange of explicit and tacit knowledge, trust-building and the negotiation of group norms (Kolagani *et al.*, 2026). If AI dominates these exchanges, it may improve efficiency while weakening the very social processes through which feedback competence and innovation capability develop.

4.4 Hybrid Human-AI Feedback

Hybrid human-AI feedback emerges as the potentially strongest opportunity to strengthen decision-making when AI contributes data-driven pattern recognition and humans contribute tacit, contextual and experience-based information (Choudhary *et al.*, 2025; Gupta and Gupta, 2025; Eijkenboom *et al.*, 2026). Users' ability to detect errors and integrate AI output appropriately seems to significantly improve with growing transparency about AI performance and clarity about the relevance of AI-generated input (Braun *et al.*, 2024; Förster *et al.*, 2025).

The most consistent implication is that AI feedback has value when it complements interpersonal evaluation. Its organisational effect depends on role clarity: whether AI is used as a preparatory mirror, a second opinion, a surveillance device, or an automated evaluator. The same technology can therefore support or weaken feedback competence depending on how it is embedded in managerial practice.

5. Discussion: Tacit Erosion as a Theoretical Proposition

The reviewed evidence leaves our theoretical proposition of "tacit erosion" a plausible, but not yet empirically confirmed concept.

Several studies identify mechanisms through which AI use may weaken critical feedback competence such as cognitive offloading, sycophancy, bias amplification and reduced practice opportunities (Rinta-Kahila *et al.*, 2023; Glickman and Sharot, 2025; Chandra *et al.*, 2026; Deller, 2026).

However, research also suggest that AI-generated feedback may strengthen feedback processes when it complements rather than replaces human judgement, provides explanations, improves transparency and is embedded in hybrid human-AI processes (Braun *et al.*, 2024; Van Quaquebeke and Gerpott, 2024; Choudhary *et al.*, 2025; Förster *et al.*, 2025; Gupta and Gupta, 2025; Eijkenboom *et al.*, 2026). More broadly, depending on task design AI-supported work can also maintain or amplify expertise (Crowston and Bolici, 2025).

Longitudinal studies could therefore examine how sustained AI-use shifts feedback practice towards substitution, decision support or augmentation, and how these different forms of human-AI task division affect critical feedback competence over time.

Our proposition is based on four observations: First, AI-generated feedback offers a comfortable alternative to demanding interpersonal feedback. Second, AI's fluency, politeness and availability seem to reshape expectations about feedback. Third, repeatedly substituting AI-generated feedback for human feedback reduces opportunities to practise interpersonal critical feedback competence. Fourth, reduced experience with disagreeing positions may influence individual learning and development which may in turn affect team learning and, indirectly, organisational innovativeness.

The term tacit erosion is appropriate for two reasons. The erosion may be tacit because users often do not notice gradual shifts in capabilities, judgement, confidence or feedback expectations (Buijsman, Carter and Bermúdez, 2025; Glickman and Sharot, 2025). The competence at risk is also tacit because critical feedback competence is practice-based, relational and difficult to externalise (Polanyi and Sen, 2009; Turkle, 2025).

The contribution of this paper lies in raising the visibility of a development that impacts a human capability. AI may make feedback more available, consistent and emotionally acceptable, yet at the same time reduce opportunities to deal with the friction, discomfort and disagreement through which independent judgement

develops. In innovation contexts, disagreement is part of the process through which ideas are challenged, improved and tacit expertise is developed.

Our concept is proposed for the following settings. Tacit erosion is most likely where AI feedback is used frequently, where human feedback is avoided because it is uncomfortable, where AI outputs are treated as dependable, and where organisations lack transparency, role clarity and feedback governance. It is less likely where AI is used to prepare human dialogue, where managers remain accountable for evaluative judgement, and where teams explicitly discuss the limitations and consequences of AI-generated feedback.

Our recommendations are pragmatic. Organisations should actively manage and train the human feedback routines on which learning and development depend. This includes creating settings in which disagreement remains legitimate, valued and safe. Useful safeguards include keeping performance and developmental feedback anchored in relationships, continually training employees to challenge AI output, supporting them in their ability to evaluate AI-generated output and including them in AI algorithm training processes. These safeguards may help to preserve AI's efficiency benefits while strengthening the conditions required for critical feedback competence.

6. Conclusion

This scoping review asked whether AI-generated feedback may undermine critical feedback competence and organisational innovativeness. The available evidence does not yet allow a definitive answer. It does, however, show that AI-generated feedback can influence self-perception, trust, judgement, team dynamics and organisational learning conditions. Across these streams, a coherent pattern emerges: when AI-generated feedback replaces interpersonal feedback practice, it may gradually weaken the tacit competence required to give, receive and act upon critical feedback.

By connecting research on AI feedback, cognitive offloading, sycophancy, team dynamics and organisational learning this paper highlights a potential risk which we term "tacit erosion".

For managers, the key recommendation is to respect the impact AI-generated feedback may have on individuals, teams and organisations and design and integrate AI feedback intentionally. Value AI for pattern detection, preparation and reflection and offer these contributions to humans who comprehend context, relationships and consequences and who keep final evaluative responsibility.

For researchers, the next step is to examine the proposed mechanism, especially longitudinal studies on feedback tolerance, independent judgement, feedback avoidance and innovation-related team behaviour.

In sum, the current literature supports the need for role clarity, transparency, human accountability and deliberate practice opportunities. AI-generated feedback can strengthen organisational learning when it encourages reflection, explains its reasoning and remains embedded in human dialogue. It may weaken feedback competence when it substitutes interpersonal evaluation, reduces opportunities to practise disagreement, or encourages uncritical acceptance of agreeable output.

Future empirical work should examine whether our suggested safeguards may preserve feedback competence over time.

Ethical Declaration: All information needed is properly disclosed and no human subject data collection is involved in this research.

AI Declaration: ChatGPT 5.5 and perplexity.ai were used for text optimization and to make the flow of the text better and more formal.

References

Agrawal, A., McHale, J. and Oettl, A. (2023) "Superhuman science: How artificial intelligence may impact innovation," *Journal of Evolutionary Economics*, 33(5), pp. 1473–1517. Available at: https://doi.org/10.1007/s00191-023-00845-3.

Agrawal, A., McHale, J. and Oettl, A. (2024) "Artificial intelligence and scientific discovery: a model of prioritized search," *RESEARCH POLICY*, 53(5). Available at: https://doi.org/10.1016/j.respol.2024.104989.

Alder, G.S. (2007) "Examining the relationship between feedback and performance in a monitored environment: A clarification and extension of feedback intervention theory," *Journal of High Technology Management Research*, 17(2), pp. 157–174. Available at: https://doi.org/10.1016/j.hitech.2006.11.004.

Anseel, F. and Sherf, E.N. (2025) "A 25-Year Review of Research on Feedback in Organizations: From Simple Rules to Complex Realities," *Annual Review of Organizational Psychology and Organizational Behavior*, 12(1), pp. 19–43. Available at: https://doi.org/10.1146/annurev-orgpsych-110622-031927.

Bachmann, N. *et al.* (2026) "Driving Sustainable Innovation: A Review of Data-Driven Technologies in Sustainable Business Model Innovation," *Business Strategy and the Environment*, 35(1), pp. 819–847. Available at: https://doi.org/10.1002/bse.70182.

Bao, S. (2025) "Cross-cultural attitudes toward generative AI in Art: Implications for sustainable creativity in the U.S., Japan, and China," *Sustainable Futures*, 10. Available at: https://doi.org/10.1016/j.sftr.2025.100929.

Basten, D. and Haamann, T. (2018) "Approaches for Organizational Learning: A Literature Review," *SAGE Open*, 8(3). Available at: https://doi.org/10.1177/2158244018794224.

Bouma, D. *et al.* (2023) "Adaptive network modeling of the influence of leadership and communication on learning within an organization," *Cognitive Systems Research*, 79, pp. 55–70. Available at: https://doi.org/10.1016/j.cogsys.2023.01.003.

Braun, M. *et al.* (2024) "Humans Supervising Artificial Intelligence – Investigation of Designs to Optimize Error Detection," *Journal of Decision Systems*, 33(4), pp. 674–699. Available at: https://doi.org/10.1080/12460125.2023.2260518.

Buijsman, S., Carter, S.E. and Bermúdez, J.P. (2025) "Autonomy by Design: Preserving Human Autonomy in AI Decision-Support," *Philosophy and Technology*, 38(3). Available at: https://doi.org/10.1007/s13347-025-00932-2.

Chandra, K. *et al.* (2026) "Sycophantic Chatbots Cause Delusional Spiraling, Even in Ideal Bayesians." Available at: http://arxiv.org/abs/2602.19141.

Choudhary, V. *et al.* (2025) "Human-AI Ensembles: When Can They Work?," *Journal of Management*, 51(2), pp. 536–569. Available at: https://doi.org/10.1177/01492063231194968.

Crowston, K. and Bolici, F. (2025) "Deskilling and upskilling with AI systems," *Information Research*, 30(iConf (2025)), pp. 1009–1023. Available at: https://doi.org/10.47989/ir30iConf47143.

Deller, A. (2026) "The Epistemic Costs of Super-Persuasive AI," *Philosophy & Technology*, 39(2), p. 92. Available at: https://doi.org/10.1007/s13347-026-01106-4.

Eijkenboom, D. *et al.* (2026) "Hybrid human-AI coaching: experiences of coaches and agents in a customer service environment," *Coaching: An International Journal of Theory, Research and Practice*, 19(1), pp. 154–172. Available at: https://doi.org/10.1080/17521882.2025.2588290.

Falckenthal, B.I. (2026) *Harvesting senior experts' tacit knowledge for organizational competitiveness: Identifying new success factors*. PhD Thesis. University of Aveiro.

Florea, N.V. and Croitoru, G. (2025) "The Impact of Artificial Intelligence on Communication Dynamics and Performance in Organizational Leadership," *Administrative Sciences*, 15(2). Available at: https://doi.org/10.3390/admsci15020033.

Förster, M. *et al.* (2025) "Tell me more, tell me more: the impact of explanations on learning from feedback provided by Artificial Intelligence," *European Journal of Information Systems*, 34(2), pp. 323–345. Available at: https://doi.org/10.1080/0960085X.2024.2404028.

Georganta, E., Ulfert, A.-S. and Ng, Z.-C. (2026) "Feedback from AI Team Members: Implications on Self-image and Trust," *Lecture Notes in Computer Science*, pp. 218–230. Available at: https://doi.org/10.1007/978-3-032-01377-4_12.

Gerlich, M. (2025a) "AI Tools in Society: Impacts on Cognitive Offloading and the Future of Critical Thinking," *Societies*, 15(1). Available at: https://doi.org/10.3390/soc15010006.

Gerlich, M. (2025b) "From Offloading to Engagement: An Experimental Study on Structured Prompting and Critical Reasoning with Generative AI," *Data*, 10(11), p. 172. Available at: https://doi.org/10.3390/data10110172.

Gerrie, J. (2008) "Three Species of Technological Dependency," *Techné: Research in Philosophy and Technology*, 12(3), pp. 184–194. Available at: https://doi.org/10.5840/techne20081233.

Glickman, M. and Sharot, T. (2025) "How human–AI feedback loops alter human perceptual, emotional and social judgements," *Nature Human Behaviour*, 9(2), pp. 345–359. Available at: https://doi.org/10.1038/s41562-024-02077-2.

Gupta, C. and Gupta, V. (2025) "Balancing intelligence and intuition: a human-AI decision support model for strategic technology adoption in SMEs," *PeerJ Computer Science*, 11, p. e3341. Available at: https://doi.org/10.7717/peerj-cs.3341.

Hein, I., Cecil, J. and Lermer, E. (2024) "Acceptance and motivational effect of AI-driven feedback in the workplace: an experimental study with direct replication," *Frontiers in Organizational Psychology*, 2. Available at: https://doi.org/10.3389/forgp.2024.1468907.

Hillebrand, L., Raisch, S. and Schad, J. (2025) "Managing with Artificial Intelligence: An Integrative Framework," *Academy of Management Annals*, 19(1), pp. 343–375. Available at: https://doi.org/10.5465/annals.2022.0072.

Høyrup, S. (2010) "Employee-driven innovation and workplace learning: Basic concepts, approaches and themes," *Transfer: European Review of Labour and Research*, pp. 143–154. Available at: https://doi.org/10.1177/1024258910364102.

Johnson, M., Maitland, E. and Sofka, W. (2026) "Developing judgement for business: an AI-based model of independent management learning," *Journal of Business Research*, 204, p. 115842. Available at: https://doi.org/10.1016/j.jbusres.2025.115842.

Kinkel, S., Schemmann, B. and Lichtner, R. (2017) "Critical Competencies for the Innovativeness of Value Creation Champions: Identifying Challenges and Work-integrated Solutions," *Procedia Manufacturing*. Elsevier B.V., pp. 323–330. Available at: https://doi.org/10.1016/j.promfg.2017.04.021.

Kolagani, N. *et al.* (2026) "Participatory modeling in the AI era," *Environmental Modelling & Software*, 196, p. 106762. Available at: https://doi.org/10.1016/j.envsoft.2025.106762.

Kuzior, A., Gualandri, F. and Gualandri, W. (2025) "Techno-Burnout as a System Safety Hazard: A Multilevel Model of the Digital Workplace," *System Safety: Human - Technical Facility - Environment*, 7(1), pp. 264–273. Available at: https://doi.org/10.2478/czoto-2025-0025.

Laamanen, T. *et al.* (2025) "Artificial intelligence in adaptive strategy creation and implementation: Toward enhanced attentional control in strategy processes," *Long Range Planning*, 58(4), p. 102561. Available at: https://doi.org/10.1016/j.lrp.2025.102561.

Lau, G.R. *et al.* (2026) "Understanding critical thinking in generative artificial intelligence use: Development, validation, and correlates of the critical thinking in AI use scale," *Computers in Human Behavior Reports*, 22, p. 101103. Available at: https://doi.org/10.1016/j.chbr.2026.101103.

Lee, H.P. (Hank) *et al.* (2025) "The Impact of Generative AI on Critical Thinking: Self-Reported Reductions in Cognitive Effort and Confidence Effects From a Survey of Knowledge Workers," *Conference on Human Factors in Computing Systems - Proceedings*. Association for Computing Machinery. Available at: https://doi.org/10.1145/3706598.3713778.

Ma, D., Akram, H. and Chen, I.-H. (2024) *Artificial Intelligence in Higher Education: A Cross-Cultural Examination of Students' Behavioral Intentions and Attitudes*, *International Review of Research in Open and Distributed Learning*.

Makó, C., Mitchell, B. and Illéssy, M. (2015) "Developing Dynamic Innovative Capabilities: The Growing Role of Innovation and Learning in the Development of Organisations and Skills in Developed and Emerging Nations of Europe," *Journal of Entrepreneurship and Innovation in Emerging Economies*, 1(1), pp. 18–38. Available at: https://doi.org/10.1177/2393957514554983.

Pepple, D. and Muthuthantrige, N. (2026) "Artificial intelligence, innovation and the new architecture of exploitation: Towards reconfiguring humanness in the age of algorithmic labour," *Journal of Innovation & Knowledge*, 11, p. 100878. Available at: https://doi.org/10.1016/j.jik.2025.100878.

Philipp, G. and Sułkowski, Ł. (2025) "Generative AI and Generation Z: Redefining Language, Identity, and Communication in the Digital Workplace," *Discourses on Culture*, 24(1), pp. 73–103. Available at: https://doi.org/10.2478/doc-2025-0014.

Polanyi, M. and Sen, A. (2009) *The Tacit Dimension*. The University of Chicago Press.

Van Quaquebeke, N. and Gerpott, F.H. (2024) "Artificial Intelligence (AI) and Workplace Communication: Promises, Perils, and Recommended Policy," *Journal of Leadership and Organizational Studies*. SAGE Publications Inc., pp. 375–381. Available at: https://doi.org/10.1177/15480518241289644.

Rinta-Kahila, T. *et al.* (2023) "The Vicious Circles of Skill Erosion: A Case Study of Cognitive Automation," *Journal of the Association for Information Systems*, 24(5), pp. 1378–1412. Available at: https://doi.org/10.17705/1jais.00829.

Russell, S.J. and Norvig, P. (2022) *Artificial Intelligence: A Modern Approach. Global Edition Paperback*. 4th ed. Pearson education Limited.

Seth, J. and Edmondson, A.C. (2026) "How to Foster Psychological Safety When AI Erodes Trust on Your Team. Proactively addressing team dynamics can prevent costly errors and cycles of dysfunction," *Harvard Business Review*, 4 February.

Siemon, D. *et al.* (2026) "Beyond Anthropomorphism: Social Presence in Human–AI Collaboration Processes," *Journal of Management Studies*, 63(2), pp. 515–560. Available at: https://doi.org/10.1111/joms.70000.

Tricco, A.C. *et al.* (2018) "PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation," *Annals of Internal Medicine*. American College of Physicians, pp. 467–473. Available at: https://doi.org/10.7326/M18-0850.

Turkle, S. (2025) *Reclaiming Conversations: The Power of Talk in a Digital Age*. Penguin Books.

Yam, K.C. *et al.* (2023) "Cultural Differences in People s Reactions and Applications of Robots, Algorithms, and Artificial Intelligence," *Management and Organization Review*, 19(5), pp. 859–875. Available at: https://doi.org/10.1017/mor.2023.21.

Zahs, D. and Schmodde, L. (2026) "Would you rather work with ChatGPT or a human coworker? Exploring the impact of generative AI on job satisfaction," *Review of Managerial Science* [Preprint]. Available at: https://doi.org/10.1007/s11846-026-01004-1.

Zheng, J. *et al.* (2025) "Unpacking human-AI interaction: Exploring unintended consequences on employee Well-being in entrepreneurial firms through an in-depth analysis," *Journal of Business Research*, 196, p. 115406. Available at: https://doi.org/10.1016/j.jbusres.2025.115406.

Human vs Algorithmic Leadership: Justice, Commitment, and Job Satisfaction

Filippo Ferrari
University of Bologna, Department of Management, Italy

filippo.ferrari5@unibo.it

Abstract: Platform-mediated work increasingly transfers managerial functions from interpersonal supervision to algorithmic coordination. This study examines whether human-supervised and algorithmically mediated work settings activate different organizational-justice pathways to commitment and job satisfaction. A two-wave panel of 321 workers compared conventional settings with riders and pony-express workers. Structural equation modelling and multigroup analyses distinguished procedural/distributive justice (Justice1) from interpersonal/informational justice (Justice2), controlling for region of origin. In human-supervised settings, Justice2 predicted affective commitment ($\beta = .42$, $p < .001$), whereas in platform-mediated settings Justice1 predicted continuance commitment ($\beta = .39$, $p < .01$). Job satisfaction showed lower variability in the platform-mediated group, with Justice1 contributing to satisfaction stability ($\beta = .35$, $p < .05$). Region of origin did not materially affect these relationships. The findings suggest that the mode through which managerial authority is enacted changes the salience of justice mechanisms: human supervision foregrounds relational fairness, whereas algorithmically mediated coordination foregrounds procedural predictability.

Keywords: Algorithmic management, Organizational justice, Organizational commitment, Job satisfaction, Gig economy

1. Introduction

Digitalization and platform-mediated work have altered the architecture of managerial control. Functions traditionally performed by supervisors—allocating tasks, monitoring performance, evaluating workers, and administering rewards—can increasingly be delegated to algorithmic systems (Kellogg et al., 2020; Meijerink and Bondarouk, 2023). Algorithmic management therefore changes not only the technology through which work is coordinated but also how managerial authority becomes visible and experienced. Recent reviews show that algorithmic management has moved from an apparent edge case of the gig economy toward the centre of organizational and HRM research, raising questions that established theories of leadership and organizational behaviour were not originally designed to address (Keegan and Meijerink, 2025).

This transformation is especially visible in platform work. Riders and other gig workers may receive assignments, performance feedback, incentives, and sanctions without regular interaction with a human supervisor. Algorithmic systems can offer speed, consistency, and scalability, but they can also intensify surveillance and make the logic underlying decisions difficult to interpret (Rosenblat and Stark, 2016; Kellogg et al., 2020). Consequently, algorithmic management should not be treated as inherently beneficial or detrimental. Its consequences depend on how workers interpret the fairness, transparency, and predictability of the system and on the type of managerial function delegated to it.

Organizational justice provides a useful lens for examining this difference. Traditional justice research distinguishes distributive, procedural, interpersonal, and informational justice (Colquitt, 2001; Colquitt et al., 2013; Adamovic, 2023). In physical work settings, interpersonal treatment and explanations are embedded in direct leader–follower exchanges. In platform settings, by contrast, workers may rely more strongly on the perceived consistency of procedures and outcomes because interpersonal cues are attenuated or absent. Recent evidence from gig workers confirms that perceived fairness of algorithmic HR decisions is associated with job satisfaction and perceived organizational support, and that fairness evaluations vary according to the type of decision performed by the algorithm (Jabagi et al., 2025).

This study examines whether two contrasting modes of managerial coordination activate different justice pathways to organizational commitment and job satisfaction. It compares conventional work settings characterized by direct human supervision with platform-mediated delivery work in which substantial coordination and control are exercised algorithmically. The contribution is threefold. First, the analysis examines whether relational/informational justice is especially consequential for affective commitment when a human supervisor is present. Second, it examines whether procedural/distributive justice becomes more salient for continuance commitment when managerial functions are mediated by a platform. Third, it investigates a less explored possibility: although algorithmic management may reduce relational richness, it may also buffer workers from some sources of interpersonal arbitrariness and thereby be associated with a

narrower distribution of job satisfaction. This last possibility complements evidence that algorithmic control can simultaneously create resources and demands for platform workers (Liang et al., 2025).

2. Literature Review and Hypotheses

2.1 Algorithmic versus Physical Leadership

Algorithmic management refers to the delegation of coordination and control functions traditionally undertaken by managers to data-driven systems. Kellogg et al. (2020) identify mechanisms through which algorithms direct, evaluate, and discipline work, while Keegan and Meijerink (2025) position algorithmic management as an increasingly central issue for organizational behaviour and HRM. This development intersects with, but should not be conflated with, the broader literature on virtual work. Froese et al. (2025), in their review of global virtual work, organize a fragmented literature around three domains—global virtual teams, distributed work, and digital technologies—and propose a multilevel framework spanning people, technology, context, and time. Their review is useful here as a broader conceptual backdrop for understanding technological mediation and distributed work arrangements. The present study, however, does not classify its riders as global virtual workers, because their work is locally performed and the study does not test the specifically global dimension examined by Froese et al. (2025).

A more direct conceptual bridge is provided by Blay et al. (2026), who treat virtual work as a multidimensional phenomenon involving spatial, temporal, technological, and employment-relationship dimensions. Their framework combines degree of virtuality with the nature of the employment relationship and distinguishes co-located, hybrid, fully virtual, and virtual gig work, associating these configurations with different HRM roles, including algorithmic HRM in virtual gig work. This framework provides useful vocabulary for the present setting because riders and pony-express workers combine platform-based technological mediation with an altered employment relationship. It does not imply that virtual work is synonymous with algorithmic management, nor that Blay et al. conceptualize algorithmic HRM as a form of leadership. Rather, their framework helps locate platform-mediated gig work within the wider transformation of how organizations manage work, while the present study focuses specifically on the justice consequences of algorithmically mediated managerial authority.

Physical leadership differs because managerial authority is enacted through recurring interpersonal interaction. Human supervisors can interpret context, communicate meaning, display empathy, and adjust decisions to exceptional circumstances. These capabilities can strengthen identification and emotional attachment, but human discretion also introduces inconsistency, favoritism, emotional volatility, and the possibility of abusive supervision. Algorithmic systems reverse part of this configuration: they reduce interpersonal discretion but may create opacity, surveillance, and a sense of dehumanization (Lee, 2018; McGuire and De Cremer, 2023).

The emerging algorithmic-management literature therefore increasingly depicts algorithmic control as a dual or paradoxical phenomenon. Meijerink and Bondarouk (2023) emphasize that algorithms can constrain autonomy while also creating value, and Liang et al. (2025) show that perceived algorithmic control can activate both job embeddedness and work anxiety, with consequences for well-being and service performance. Recent systematic work similarly suggests that algorithmic management cannot be understood as a single uniform configuration because different combinations of algorithmic and employee autonomy produce different worker responses (Chen et al., 2026). This argument is compatible with Blay et al.'s (2026) broader contingency premise that different work configurations call for different HRM roles, but the specific justice mechanisms tested below are derived from organizational-justice and algorithmic-management research rather than from the virtual-work framework itself.

2.2 Organizational Justice as Instrumental and Relational Fairness

Organizational justice concerns employees' perceptions of fairness in organizational decisions and treatment. The established four-dimensional framework distinguishes distributive justice (fairness of outcomes), procedural justice (fairness of decision processes), interpersonal justice (dignity and respect), and informational justice (adequacy and truthfulness of explanations) (Colquitt, 2001). Meta-analytic evidence indicates that these dimensions are related but not interchangeable and that they connect fairness perceptions to attitudes and behaviours through both social-exchange and affective mechanisms (Colquitt et al., 2013).

For the purposes of the present comparison, the four dimensions are organized into two theoretically meaningful components. Justice1 combines procedural and distributive justice and represents the instrumental/formal side of fairness: whether procedures are consistent and outcomes are allocated fairly. Justice2 combines relational and informational justice and represents the social/interpersonal side: whether workers are treated respectfully and receive adequate explanations. This distinction does not replace the established four-dimensional model; rather, it provides a parsimonious way of examining whether the relative importance of formal versus relational fairness changes with leadership modality.

This question is especially relevant in algorithmic settings. Algorithms may be associated with consistency and reduced personal favoritism in standardized tasks, but their opacity can undermine procedural and informational justice. Jabagi et al. (2025), studying 435 Uber drivers, show that workers actively evaluate algorithmic HR decisions through a justice lens and that perceived algorithmic fairness is positively related to job satisfaction. At the same time, Moritz and Wehner (2026) demonstrate experimentally that algorithmic management can receive less negative justice evaluations among individuals with previous experiences of human discrimination, and that algorithmic discrimination is evaluated differently from discrimination by a human manager. Thus, the absence of interpersonal discretion may itself alter the reference point from which fairness is judged.

2.3 Justice, Commitment, and Job Satisfaction

Organizational commitment provides a useful outcome for distinguishing relational from instrumental attachment. Allen and Meyer's (1990) three-component framework differentiates affective commitment, reflecting emotional attachment and identification; continuance commitment, reflecting perceived costs or instrumental reasons for remaining; and normative commitment, reflecting a sense of obligation. Because affective commitment is inherently relational, it should be especially responsive to respectful treatment and meaningful communication when workers interact directly with supervisors. In physical settings, Justice2 should therefore provide a particularly strong basis for emotional attachment.

In platform-mediated work, the exchange relationship is more weakly anchored in a continuing interpersonal bond with a supervisor. Workers instead interact with rules governing access to tasks, evaluations, and rewards. Under these conditions, procedural clarity and distributive fairness may become more salient for decisions to remain on the platform. Recent research on platform workers also indicates that economic dependence, autonomy, commitment, and algorithmic review systems can combine in complex ways to shape work satisfaction, reinforcing the need to avoid a simple positive-versus-negative interpretation of algorithmic management.

Job satisfaction adds a complementary perspective. Human leaders can generate high satisfaction through recognition, support, and high-quality relationships, but direct supervision also exposes employees to interpersonal injustice. Algorithmic systems remove some of these relational opportunities while simultaneously removing some sources of interpersonal variance. The emerging evidence is consistent with such a contingent interpretation. Liang et al. (2025) find simultaneous beneficial and detrimental pathways from algorithmic control, while Moritz and Wehner (2026) show that prior human discrimination changes how people evaluate algorithmic management. Accordingly, an algorithmic environment may not necessarily generate higher satisfaction, but it may produce a narrower and more predictable satisfaction profile when procedural fairness is perceived as stable.

Previous evidence from conventional leader-follower settings also supports the relational sensitivity of job satisfaction. Ferrari (2024), applying Path-Goal Theory to a sample of 181 Italian employees, found that supportive leadership significantly predicted job satisfaction, whereas directive, participative, and achievement-oriented leadership did not. Job satisfaction, in turn, strongly predicted work engagement and significantly mediated the relationship between supportive leadership and engagement. These findings suggest that, where a human supervisor is present, satisfaction may be particularly responsive to supportive and relational leader behaviours. Whether this mechanism persists when supervisory functions are transferred to algorithms remains comparatively underexplored.

2.4 Hypotheses

Building on this framework, it is proposed that the leadership context changes which dimension of justice becomes most consequential for employee attitudes.

H1: In physical work environments, Justice2 (relational/informational justice) is the primary predictor of affective commitment, as emotional attachment is driven by interpersonal treatment and communication.

H2: In platform-mediated, algorithmically managed work environments, Justice1 (procedural/distributive justice) is the primary predictor of continuance commitment, reflecting an instrumental relationship based on process clarity and outcome fairness.

H3: While human-supervised environments offer higher potential for peak job satisfaction through high Justice2, platform-mediated algorithmic environments will exhibit more stable satisfaction levels by utilizing Justice1 to buffer against some relational risks associated with direct human supervision.

3. Methodology

A two-wave panel design was used to examine whether organizational justice perceptions at Time 1 predicted subsequent employee outcomes at Time 2 across two modes of managerial coordination: direct human supervision and platform-mediated algorithmic management. The longitudinal design enabled the study to examine motivational pathways over time while retaining the same participants across measurement occasions.

3.1 Sample and Data Collection

Participants were recruited purposively from two work environments: (1) conventional organizational settings characterized by direct human supervision and recurring face-to-face leader–follower interaction and (2) platform-mediated settings involving riders and pony-express workers whose activities were substantially allocated, monitored, or coordinated through digital platforms. Of 331 respondents at Time 1, 321 participated at Time 2. The study therefore retained 97% of the original panel. Participation was voluntary and responses were anonymous.

The platform-mediated subsample was geographically heterogeneous. Respondents were asked to report their region of origin rather than nationality or citizenship. Africa accounted for roughly one third of this group, with North African origins more common than West African origins. About one quarter of respondents were Italian. Approximately one third originated from Asia, especially South Asia, with a further visible presence from Afghanistan and the broader Middle Eastern/Central Asian area. Latin American and Eastern European origins were represented only in small residual shares, and approximately 2% of respondents did not answer the item. The pattern is broadly consistent with recent Italian evidence describing food-delivery work as a sector with substantial migrant and extra-EU participation and a marked South Asian presence (NIdiL CGIL, 2025). Because the purpose of the variable was to account for broad compositional heterogeneity rather than to infer cultural orientations, region of origin was treated as a control variable.

3.2 Measures

Organizational justice was assessed using the multidimensional framework developed by Colquitt (2001). Consistent with the theoretical model, the dimensions were organized into Justice1 (procedural and distributive justice) and Justice2 (relational and informational justice).

Organizational commitment was assessed according to the three-component conceptualization of Allen and Meyer (1990), distinguishing affective, continuance, and normative commitment. Job satisfaction was assessed through Likert-type items focused on respondents' evaluation of their work assignments and management context.

3.3 Analytical Strategy

The analysis proceeded in three stages. First, confirmatory factor analyses were used to evaluate the measurement structure and the proposed justice configuration. Reliability, convergent validity, and discriminant validity were then assessed. Second, structural equation modelling was used to estimate the longitudinal relationships between Time 1 justice perceptions and Time 2 outcomes. Third, multigroup analyses compared the human-supervised and platform-mediated algorithmic contexts. Age, tenure, gender, and region of origin were included as controls where applicable. Region of origin was retained specifically to test whether the geographical composition of the platform-mediated group provided an alternative explanation for the focal relationships. Path coefficients and significance levels were estimated using 5,000 bootstrap resamples.

4. Results

4.1 Panel Stability and Measurement Model

Of the 331 participants recruited at Time 1, 321 completed Time 2, yielding a dropout rate of 3.02%. This low attrition indicates substantial panel stability. Before testing the structural relationships, the measurement model was evaluated for reliability and validity. All factor loadings exceeded .708. Cronbach's alpha and composite reliability values for Justice1, Justice2, the commitment dimensions, and Job Satisfaction ranged from .78 to .92, exceeding the conventional .70 threshold. Discriminant validity was supported by HTMT values below .90.

4.2 Structural Model

The final structural model showed a strong fit to the observed data: $\chi^2/df = 1.15$, CFI = .98, TLI = .97, RMSEA = .03, and SRMR = .04. Path coefficients and significance levels were calculated using 5,000 bootstrap resamples.

Region of origin did not significantly predict the focal outcomes, and including it as a control did not materially change the direction, magnitude, or statistical significance of the hypothesized relationships. Thus, within this sample, the observed differences between the human-supervised and platform-mediated algorithmic groups were not explained by the broad regional composition of the rider/pony-express group.

4.3 Hypothesis Testing

H1 predicted that Justice2 would be the primary predictor of affective commitment in the physical leadership group. The path from Justice2 at Time 1 to affective commitment at Time 2 was positive and significant ($\beta = .42$, $p < .001$), supporting H1.

H2 predicted that Justice1 would be the primary predictor of continuance commitment in the platform-mediated algorithmic group. The path from Justice1 at Time 1 to continuance commitment at Time 2 was significant ($\beta = .39$, $p < .01$), supporting H2.

H3 concerned differences in job-satisfaction dispersion across the two managerial contexts. The standard deviation of Job Satisfaction was lower in the platform-mediated group (SD = .42) than in the human-supervised group (SD = .85), and Levene's test confirmed a significant difference in variance ($F = 12.44$, $p < .001$). The direct path from Justice1 to satisfaction stability in the platform-mediated environment was also significant ($\beta = .35$, $p < .05$). H3 was therefore supported.

Table 1: Summary of SEM results and model fit. Note: Path coefficients and fit indices are reported for the T1–T2 panel (N = 321).

Index/Hypothesis	Value	Result/Status
Model Fit: χ^2/df	1.15	Excellent
Model Fit: CFI	.98	Excellent
Model Fit: RMSEA	.03	Excellent
H1: Justice2 → Affective (Physical)	$\beta = .42$	Supported ($p < .001$)
H2: Justice1 → Continuance (Platform-mediated)	$\beta = .39$	Supported ($p < .01$)
H3: Justice1 → Satisfaction Stability (Platform-mediated)	$\beta = .35$	Supported ($p < .05$)

5. Discussion

The findings indicate that the mode through which managerial authority is enacted changes the justice pathway through which workers relate to organizations. The comparison should not be read as a generic contrast between 'physical' and 'virtual' work. Froese et al. (2025) show that virtual work is itself heterogeneous, spanning different actors, distributed arrangements, technologies, and contextual conditions. Blay et al. (2026) similarly argue that HRM requirements depend on the particular combination of virtuality and employment relationship rather than on virtuality alone. Against that broader background, the present study isolates a narrower contrast: recurring human supervision versus platform-mediated algorithmic coordination. The results suggest a trade-off between relational richness and procedural predictability within these two specific configurations.

5.1 Physical Leadership, Relational Justice, and Affective Commitment

The support for H1 (β = .42, p < .001) indicates that relational and informational justice are particularly important for affective commitment under physical leadership. When a supervisor is visibly present, employees can evaluate not only what decisions are made but how they are treated and how decisions are explained. Respect, dignity, and meaningful communication therefore become signals about the quality of the relationship with the organization itself. This result is consistent with justice research linking interactional treatment to social-exchange and affective mechanisms (Colquitt et al., 2013).

The finding also clarifies the distinctive value of human leadership in increasingly digital workplaces. Human leaders can provide contextual interpretation and recognition that standardized systems cannot easily reproduce. However, this relational capacity is not unconditionally beneficial: the same interpersonal channel that enables recognition and emotional attachment can transmit disrespect, favoritism, inconsistency, or abusive behaviour. Physical leadership therefore offers greater relational upside but also greater relational exposure.

5.2 Algorithmic Leadership, Instrumental Justice, and Continuance Commitment

H2 (β = .39, p < .01) suggests a different mechanism in the platform-mediated group. Here, Justice1 becomes a central anchor because workers depend heavily on rules governing allocation, evaluation, and rewards rather than on a continuing interpersonal relationship with a supervisor. Continuance commitment in this context is therefore consistent with an instrumental relationship: workers remain when the system is sufficiently predictable and the exchange is perceived as worthwhile. This interpretation is also compatible with Blay et al.'s (2026) description of virtual gig work as combining technological mediation with an altered employment relationship, although the present study extends that framework by examining organizational-justice mechanisms rather than HRM roles.

This result should not be interpreted as evidence that algorithmic management is inherently fair. Contemporary research emphasizes that algorithmic systems may be opaque, restrictive, and difficult to contest (Keegan and Meijerink, 2025). What the present findings suggest is more specific: when procedural and distributive fairness are perceived, these forms of justice have particular motivational relevance in a context where interpersonal leadership is attenuated. Jabagi et al. (2025) similarly show that fairness perceptions of algorithmic HR decisions are consequential for gig workers' attitudes, including job satisfaction.

5.3 Job Satisfaction and the Algorithmic Buffer

The most distinctive finding concerns H3. Job satisfaction displayed substantially lower variability in the platform-mediated group (SD = .42) than in the human-supervised group (SD = .85), while Justice1 was positively associated with satisfaction stability in the platform-mediated environment (β = .35, p < .05). This pattern is consistent with a possible 'algorithmic buffer': algorithmic management may reduce exposure to some interpersonal sources of dissatisfaction even while offering fewer opportunities for relationally generated peaks in satisfaction.

This interpretation is compatible with, but more nuanced than, the dominant dehumanization narrative. Recent evidence shows that algorithmic control can simultaneously strengthen job embeddedness and increase anxiety (Liang et al., 2025). Likewise, Moritz and Wehner (2026) find that prior discrimination by human supervisors weakens the negative association between algorithmic management and justice evaluations, and that algorithmic discrimination can be evaluated less negatively than equivalent human discrimination. These findings support the idea that workers do not evaluate algorithms in isolation: they compare them, implicitly or explicitly, with the risks and benefits of human discretion.

Accordingly, the present study does not claim that algorithms make workers more satisfied, nor that platform-mediated work is generally preferable to human-supervised work. Rather, it suggests that the source and dispersion of satisfaction may differ across these managerial configurations. Human supervision can generate stronger positive experiences through recognition and relational support, but it can also produce sharper dissatisfaction when interpersonal justice is low. Platform-mediated algorithmic management may provide a more standardized baseline in which procedural predictability becomes relatively more important.

This result also extends previous evidence from physical leadership contexts. Ferrari (2024) found that supportive leadership predicted job satisfaction, which subsequently mediated its relationship with work engagement. The present findings suggest an important boundary condition: when the human supervisory

relationship is removed or substantially reduced, satisfaction may become less sensitive to relational leadership inputs and more dependent on procedural predictability.

The region-of-origin control is also relevant to interpretation. The rider/pony-express group was highly heterogeneous and included a substantial proportion of respondents of migrant origin, yet region of origin did not account for the focal outcomes or alter the hypothesized relationships. This does not imply that migration status, citizenship, culture, or labour-market vulnerability are irrelevant to platform work. It indicates more narrowly that the justice patterns observed here cannot be reduced to broad regional composition within this sample.

5.4 Theoretical Contribution

The study contributes to organizational justice and algorithmic-management research in three ways. First, it shows that the relative salience of justice dimensions depends on how managerial authority is enacted: relational/informational justice is linked to affective attachment under direct human supervision, whereas procedural/distributive justice is linked to instrumental attachment in platform-mediated algorithmic work. Second, it extends the duality perspective on algorithmic management by identifying a potential relational-buffer mechanism alongside established concerns about opacity, surveillance, and reduced autonomy. Third, it connects this justice-based comparison to the broader virtual-work literature without collapsing distinct constructs. Froese et al. (2025) provide a multilevel account of the heterogeneity of global virtual work, while Blay et al. (2026) show that different combinations of virtuality and employment relationship imply different HRM roles. The present study complements these frameworks by asking how justice mechanisms differ when managerial authority is exercised primarily through direct human supervision versus algorithmically mediated platform coordination.

6. Practical Implications

The findings suggest that organizations should avoid a one-size-fits-all approach to managerial coordination. This conclusion is consistent with the contingency logic of Blay et al. (2026), who argue that different virtual-work configurations require different HRM roles. The present results add a justice-based implication: the managerial priority may also depend on whether authority is experienced mainly through interpersonal supervision or through platform rules and algorithmic decisions.

6.1 Platform-Mediated and Algorithmic Environments

In platform-mediated algorithmic environments, organizations should prioritize transparent and predictable procedures. Explainable algorithmic practices are likely to be more consequential than superficial attempts to imitate interpersonal leadership through gamified messages or relational nudges. Platforms should communicate the parameters that influence task allocation, performance evaluation, and pricing whenever possible, thereby reducing black-box perceptions and strengthening procedural justice.

Organizations may also use algorithms selectively as a buffer in routine coordination. Automating standardized scheduling or task distribution can reduce opportunities for favoritism and inconsistent supervisory behaviour. However, this benefit depends on the quality of the underlying data. Performance systems should incorporate contextual variables—such as weather, traffic, or road closures for riders—so that algorithmic evaluations reflect actual working conditions rather than simplified data proxies.

6.2 Physical Environments

In physical settings, relational justice should be treated as a managerial capability rather than as an optional interpersonal quality. Selection and development of supervisors should therefore include empathy, respectful communication, and the capacity to provide adequate explanations. Organizations can complement conventional performance indicators with periodic relational-justice audits or upward feedback to identify patterns of inconsistency, disrespect, or emotional volatility before they undermine commitment and satisfaction.

Leader development should also move beyond task and measurement management. Listening, acknowledging concerns, exploring their causes, and responding with context-sensitive explanations can help managers create the meaning and recognition that constitute the distinctive advantage of human leadership.

6.3 Hybrid and Transitional Arrangements

Hybrid arrangements should allocate authority according to task characteristics. Algorithms are well suited to standardized, high-volume activities such as route optimization, scheduling, and resource allocation, provided that procedures are transparent and contestable. Decisions requiring contextual judgement, conflict resolution, ethical balancing, or high-stakes interpretation should retain meaningful human involvement. This recommendation should not be confused with Blay et al.'s (2026) specific transition pathways among HRM roles; rather, it applies the present study's justice findings to mixed human-algorithmic systems. As routine coordination becomes increasingly automated, managerial development should consequently emphasize contextual judgement, ethical reasoning, and the capacity to adjudicate exceptions that standardized systems cannot adequately interpret.

7. Limitations and Future Research

Several limitations qualify the findings. First, although the two-wave design strengthens temporal ordering, the measures rely on self-reported perceptions and are therefore potentially affected by common-method and social-desirability biases. Future research should combine perceptual measures with behavioural outcomes such as turnover, platform deactivation, absenteeism, or documented disciplinary events.

Second, the platform-mediated group consists of riders and pony-express workers in the gig economy. Their employment relationship, task structure, and dependence on platform rules differ from those of employees in conventional organizations. Region of origin was controlled and did not materially affect the focal relationships, but this broad measure should not be conflated with nationality, citizenship, migration status, language proficiency, or cultural orientation. Moreover, although Froese et al. (2025) provide an important framework for global virtual work, the present design does not establish that these riders constitute global virtual workers; the study was conducted within one national context and does not test cross-border dispersion or global work processes. Future research could examine whether the justice mechanisms identified here generalize to genuinely global platform work and other distributed work arrangements.

Third, the two-factor justice configuration is deliberately parsimonious. Although Justice1 and Justice2 capture the instrumental/formal and relational/social distinction central to this study, future research should test whether procedural, distributive, interpersonal, and informational justice have distinct effects under different algorithmic configurations. Blay et al.'s (2026) distinction among co-located, hybrid, fully virtual, and virtual gig work offers a useful framework for such extensions, but those categories should be tested rather than assumed to be interchangeable with different forms of leadership. This is particularly relevant as algorithmic systems vary substantially in the degree of autonomy and control they exercise (Chen et al., 2026).

Finally, the proposed algorithmic-buffer interpretation should be tested directly. Future studies could measure prior exposure to abusive supervision or discrimination and examine whether these experiences moderate reactions to algorithmic management. Moritz and Wehner's (2026) experimental evidence provides a promising foundation for this extension. Research on hybrid leadership should also examine when human review improves algorithmic decisions and when it instead reintroduces the interpersonal inconsistency that automation was intended to reduce.

8. Conclusion

The transition from direct human supervision to platform-mediated algorithmic management does not simply replace one leader with another; it changes how managerial authority is encountered and, with it, the justice mechanisms through which workers interpret their relationship with the organization. Under direct human supervision, relational and informational justice support affective commitment by making the employment relationship socially meaningful. In platform-mediated algorithmic work, procedural and distributive justice support a more instrumental form of attachment grounded in predictability and exchange. Job satisfaction further reveals a possible trade-off between relational potential and interpersonal variability. These findings complement, rather than subsume, the virtual-work frameworks of Froese et al. (2025) and Blay et al. (2026): virtual work is heterogeneous, and algorithmic HRM is one configuration within that wider landscape. The contribution of the present study is to show that, within a specific comparison of human-supervised and platform-mediated work, the salience of organizational-justice mechanisms varies with the form through which managerial authority is enacted.

Ethics Declaration: Ethical clearance was not required for this study. Participation was entirely voluntary, data were collected anonymously, and the study did not involve sensitive personal information or sensitive topics. Participants were informed about the purpose of the research and the voluntary nature of their participation.

AI Declaration: Artificial Intelligence (AI) tools were used to support language editing, manuscript restructuring, and the identification and integration of relevant literature. All theoretical arguments, interpretations, empirical results, citations, and final wording were reviewed and verified by the author, who takes full responsibility for the content of the paper.

References

Adamovic, M. (2023) 'Organizational justice research: A review, synthesis, and research agenda', European Management Review, Vol. 20, No. 4, pp. 762–782. https://doi.org/10.1111/emre.12564

Allen, N.J. and Meyer, J.P. (1990) 'The measurement and antecedents of affective, continuance and normative commitment to the organization', Journal of Occupational Psychology, Vol. 63, No. 1, pp. 1–18. https://doi.org/10.1111/j.2044-8325.1990.tb00506.x

Blay, T., Froese, F.J., Raghuram, S., Bell, B.S. and Bäker, A. (2026) 'Managing Virtual Work: An Integrative Framework for Human Resource Management', Human Resource Management, Vol. 65, No. 5, pp. 1387–1405. https://doi.org/10.1002/hrm.70087

Chen, W., Li, A., Pan, C., Yu, T., Ali, A. and Sun, Y. (2026) 'Algorithmic management in the workplace: A systematic review and topic modeling integration using BERTopic', International Journal of Information Management, Vol. 86, 102994. https://doi.org/10.1016/j.ijinfomgt.2025.102994

Colquitt, J.A. (2001) 'On the dimensionality of organizational justice: A construct validation of a measure', Journal of Applied Psychology, Vol. 86, No. 3, pp. 386–400. https://doi.org/10.1037/0021-9010.86.3.386

Colquitt, J.A., Scott, B.A., Rodell, J.B., Long, D.M., Zapata, C.P., Conlon, D.E. and Wesson, M.J. (2013) 'Justice at the millennium, a decade later: A meta-analytic test of social exchange and affect-based perspectives', Journal of Applied Psychology, Vol. 98, No. 2, pp. 199–236. https://doi.org/10.1037/a0031757

Ferrari, F. (2024) "Path-Goal Theory and Followers' Work Engagement: An Empirical Exploration of the Situational Leadership Approach", Proceedings of the 20th European Conference on Management Leadership and Governance, ECMLG 2024, pp. 182–191.

Froese, F.J., Blay, T., Gibson, C.B., Shaffer, M.A. and Benitez, J. (2025) 'Global virtual work: a review, integrative framework, and future research opportunities', Journal of International Business Studies, Vol. 56, pp. 691–719. https://doi.org/10.1057/s41267-025-00775-1

Jabagi, N., Croteau, A.-M., Audebrand, L.K. and Marsan, J. (2025) 'Do algorithms play fair? Analysing the perceived fairness of HR-decisions made by algorithms and their impacts on gig-workers', The International Journal of Human Resource Management, Vol. 36, No. 2, pp. 235–274. https://doi.org/10.1080/09585192.2024.2441448

Keegan, A. and Meijerink, J. (2025) 'Algorithmic management in organizations? From edge case to center stage', Annual Review of Organizational Psychology and Organizational Behavior, Vol. 12, pp. 395–422. https://doi.org/10.1146/annurev-orgpsych-110622-070928

Kellogg, K.C., Valentine, M.A. and Christin, A. (2020) 'Algorithms at work: The new contested terrain of control', Academy of Management Annals, Vol. 14, No. 1, pp. 366–410. https://doi.org/10.5465/annals.2018.0174

Lee, M.K. (2018) 'Understanding perception of algorithmic decisions: Fairness, trust, and emotion in response to algorithmic management', Big Data & Society, Vol. 5, No. 1, pp. 1–16. https://doi.org/10.1177/2053951718756684

Liang, B., Wang, Y., Huo, W., Song, M. and Shi, Y. (2025) 'Algorithmic control as a double-edged sword: Its relationship with service performance and work well-being', Journal of Business Research, Vol. 189, 115199. https://doi.org/10.1016/j.jbusres.2025.115199

McGuire, J. and De Cremer, D. (2023) 'Algorithms, leadership, and morality: Why a mere human effect drives the preference for human over algorithmic leadership', AI and Ethics, Vol. 3, pp. 601–618. https://doi.org/10.1007/s43681-022-00192-2

Meijerink, J. and Bondarouk, T. (2023) 'The duality of algorithmic management: Toward a research agenda on HRM algorithms, autonomy and value creation', Human Resource Management Review, Vol. 33, No. 1, 100876. https://doi.org/10.1016/j.hrmr.2021.100876

Moritz, J.M. and Wehner, M.C. (2026) 'Justice evaluations of algorithmic management: The role of prior discrimination experience', Business & Information Systems Engineering, published online 9 April 2026. https://doi.org/10.1007/s12599-026-01002-3

NIdiL CGIL (2025) La condizione di lavoro dei rider del food delivery. National survey report, Italy.

Rosenblat, A. and Stark, L. (2016) 'Algorithmic labor and information asymmetries: A case study of Uber's drivers', International Journal of Communication, Vol. 10, pp. 3758–3784. https://doi.org/10.2139/ssrn.2686227

The Influence of Workload on Work-life Conflict: Empirical Evidence from Accountants

Soraia Ferreira[1], Márcia Duarte[2] and Oscarina Conceição[2,3]
[1]Department of Management, Management School, Polytechnic University of Cávado and Ave, Barcelos, Portugal
[2]Applied Management Research Unit (UNIAG), School of Management, Polytechnic University of Cávado and Ave (UPCA), Barcelos, Portugal
[3]Iscte Instituto Universitário de Lisboa, DINÂMIA'CET, Lisbon, Portugal

a27501@alunos.ipca.pt
mduarte@ipca.pt
oconceicao@ipca.pt

Abstract: Increasing professional demands have contributed to growing work overload and to intensified conflict between professional and personal life. The accountancy profession, marked by strict deadlines, constant legal and tax requirements, and pressure from clients and supervisors, is particularly conducive to this phenomenon, and the topic remains underexplored in the national literature. This study analyses the influence of work overload on work–life conflict amongst Portuguese accountants, examining how work overload limits the time and energy available for family responsibilities and leisure. The convenience sample comprises 272 Portuguese accountants with data collected via an online questionnaire distributed on social media and publicised by the Order of Certified Accountants. Validated scales measured work overload and work–life conflict, the latter decomposed into three dimensions: work–family, family–work and work–leisure conflict. Data were analysed using confirmatory factor analysis, Pearson correlations and linear regression. Regression results confirm work overload as a positive, statistically significant predictor of work–life conflict across all three dimensions. The strongest effect emerged for work–family conflict, followed by work–leisure conflict. The effect on family–work conflict was weaker. The study's main contribution is its empirical application, still scarce, of the work–life conflict literature to the accountancy sector in Portugal, offering robust regression-based evidence on how work overload differentially affects family and leisure domains. Practically, findings provide organisations a well-founded basis for designing appropriate human resource policies, including equitable task redistribution, flexible working arrangements and stronger organisational support.

Keywords: Work overload, Work–family conflict, Work–leisure conflict, Accountants

1. Introduction

Over recent decades, economic, social and technological transformations have led to profound changes in the organisation of work. Increasing professional demands, the intensification of tasks and the need for constant availability have contributed to a situation of greater workplace pressure (Guest, 2002). This context often leads to work overload, defined as a level of demand that exceeds an individual's capacity to cope with assigned tasks and responsibilities (Kennell, 2021). At the same time, the conflict between work and personal life has come to feature prominently in the literature, being defined as the incompatibility between the demands of work and responsibilities outside it, including family, leisure and other areas of life (Greenhaus and Beutell, 1985).

This conflict is two-way, with work potentially interfering with personal life and vice versa, although research shows that work demands tend to have a greater impact on personal life (Boamah et al., 2022). Excessive workloads and a lack of time to balance different roles contribute to imbalances that result in stress, emotional exhaustion and dissatisfaction with life and work (Shields and Chen, 2021).

The accountancy profession is characterised by periods of high workload, strict deadlines, constant legal and tax requirements, and pressure from clients and supervisors (Paul and Nazareth, 2010). This situation exposes professionals to heavy workloads, often accompanied by long working hours and limited flexibility, increasing the likelihood of experiencing work–life conflicts (Rafiq et al., 2022).

Building on this, the present study analyses the influence of work overload on work–life conflict amongst Portuguese accountants, distinguishing between three dimensions of this conflict: work–family, family–work and work–leisure conflict. In doing so, it examines how work overload limits the time and energy available for family responsibilities and leisure activities, and whether its impact is indeed asymmetric across domains, as boundary theory would predict. The study contributes to the literature by providing robust, regression-based empirical evidence from an occupational group and national context in which this relationship has been little

studied, and by extending the analysis to the leisure domain alongside the more commonly examined family domain.

2. Background

2.1 Work Overload

Work overload occurs when a professional must deal with simultaneous demands from various sources, such as managers, clients, colleagues or external organisations. This multitude of expectations can lead to psychological conflict, as different responsibilities compete for the worker's time and energy, increasing pressure and work overload (Duxbury et al., 2014). Initially, the concept focused on factors such as a lack of clarity regarding roles (role ambiguity) and staff shortages; it was subsequently broadened to include excessive workload and time pressure more generally (Anam et al., 2020; Rafiq et al., 2022).

Workload intensity and frequency may vary, but the real risk arises when overload persists over time, exposing workers to constant pressure in their day-to-day lives (Williams et al., 2021); the problem is not the work itself but the demands that exceed human capacity. In highly demanding sectors, workload tends to be heavier, particularly due to a lack of staff to share tasks or an uneven distribution of work, whereby some employees end up shouldering a heavier burden than others (Williams et al., 2021). Deliberate understaffing and the setting of unrealistic task criteria are among the main contributing factors, together with a lack of managerial support, unclear role expectations and excessive time pressure (Kennell, 2021). Staff reductions due to redundancies compound this further, as remaining employees take on additional duties, a situation strategically maintained by management to minimise costs, which results in more responsibilities with fewer resources, longer working hours and increasing demands from clients and supervisors (Williams et al., 2021).

2.2 Work–life Conflict and Theoretical Framework

Greenhaus and Beutell (1985) suggest that work–family conflict arises when the demands of roles at work and within the family become incompatible, hindering performance in both. This conflict can manifest itself in three main ways. Time-based conflict occurs when time devoted to one role interferes with the fulfilment of the other, due to long, inflexible working hours or family responsibilities. Strain-based conflict occurs when stress generated in one role hinders performance in the other, owing to factors such as psychological demands or physical strain at work, burnout, a lack of family support and marital conflicts. Behaviour-based conflict occurs when the behaviours required by one role prevent the fulfilment of another, as a result of the attitudes and actions expected in one role coming into conflict with the expectations of another.

These mechanisms are directly implicated in the demands facing accountants: long working hours, continuous shifts and weekend work significantly undermine individuals' ability to maintain a healthy work–life balance (Hui et al., 2023; Mansour and Tremblay, 2016), reducing the time and opportunities available for physical and mental recovery and leading to higher levels of exhaustion, fatigue and health problems (Amazue and Lawrence, 2013; Lott and Wöhrmann, 2022). Role ambiguity compounds this time-based pressure: a lack of clarity regarding job expectations increases uncertainty and demands greater mental effort, which in turn affects the attention available for family roles (Amazue and Lawrence, 2013; Lott and Wöhrmann, 2022). The demands associated with one's professional role thus conflict with the pressures arising from family responsibilities, giving rise to tensions between the roles of employee, spouse and parent, particularly when it is necessary to work overtime or take work home (Greenhaus and Beutell, 1985).

The Conservation of Resources Theory (Hobfoll, 1989) offers a theoretical account of why these time and strain-based pressures generate conflict. It argues that people strive to acquire, retain, protect and build up resources they value, and that stress arises when these resources are threatened, actually lost, or when a significant investment of resources fails to yield the expected return. Excessive demands at work take up time and energy that would otherwise be needed for family and leisure, leading to conflict; this conflict, in turn, causes greater stress, which consumes even more resources, fuelling a vicious cycle (Hobfoll, 1989).

Whilst COR theory explains the mechanism through which work overload depletes the resources needed for personal life, it does not, on its own, explain why this depletion tends to flow more strongly from work to personal life than in the opposite direction. Boundary Theory (Ashforth et al., 2000) addresses this asymmetry directly: it proposes that the boundary surrounding the work domain tends to be more protected by organisational norms and formal expectations, whereas the family and leisure domains are more informal and therefore more easily crossed by demands originating at work. Although the conflict between domains is bidirectional, this asymmetry in boundary permeability helps explain why work tends to exert a stronger

influence on personal life than personal life exerts on work (Abendroth and Dulk, 2011; Boamah et al., 2022; Jang and Zippay, 2011). Taken together, COR theory and Boundary Theory offer complementary explanations of the phenomenon under study: the former accounts for the depletion of resources caused by work overload, and the latter accounts for the direction in which that depletion is most strongly felt.

2.3 Hypotheses Development

Building on this framework, work overload is expected to be positively associated with work–life conflict, consistent with COR theory's resource-depletion logic. Work overload is positioned as a first-order construct. Moreover, given the greater permeability of the boundaries surrounding family and leisure relative to those surrounding work (Ashforth et al., 2000), this impact is expected to be stronger when personal life is affected by work than when work is affected by personal life. As the present study distinguishes between three dimensions of work–life conflict — work–family, family–work and work–leisure conflict — this asymmetry is examined across all three.

As such, it is hypothesised:

Hypothesis 1: Work overload is positively related to work–life conflict amongst accountants.

Hypothesis 2: The impact of work overload on work-life conflict (work–family and work–leisure conflict) is greater than its impact on life-work conflict (family–work conflict).

3. Methodology

3.1 Sample

The convenience sample is composed of 272 individuals (n=272). Respondents are Portuguese accountants. Regarding gender, 82,4% are female, 17,6% are male. 37,1% of accountants are from northern Portugal. Regarding age, 37,5% are between 40 and 49 years old and 25,4% are between 50 and 59 years old. 68% of professionals are married or in a civil partnership. The majority of accountants have dependants or children in their care (61,02%). In relation to academic qualifications, 76,8% have a bachelor's degree and 16,5% a master's degree.

3.2 Measures

This study employs a questionnaire survey. All scales were subjected to a translation and back-translation process conducted by two independent bilingual translators, following standard back-translation procedures to ensure conceptual and linguistic equivalence between the original English versions and the Portuguese version.

Work overload was assessed through four dimensions. Role ambiguity was measured using a four-item scale adapted from Lequeurre et al. (2013) (e.g., "I am unsure about what is and isn't my responsibility"). Staff shortages, excessive workload and time pressure were each measured using three-item scales adapted from Duxbury et al. (2014) (e.g., "There aren't enough staff to allow for breaks during working hours (e.g. lunch, coffee breaks)"; "There is a heavy workload, such as forms to submit and emails to reply to"; "It is difficult to get everything done within the time available"). All items were rated on a five-point scale ranging from 1 (Never) to 5 (Always)**.** A composite work overload score was computed as the mean of all 13 items across the four dimensions. To measure work–family conflict and family–work conflict, the scale developed by Haslam et al. (2015) was used. E.g.: My job prevents me from spending enough quality time with my family; My job has a negative impact on my family life; My family concerns or responsibilities often distract me at work; My family has a negative impact on my day-to-day work tasks. To measure work–leisure conflict, the scale developed by Wong and Lin (2007) was used. E.g.: I don’t have enough time for leisure activities because of my work; I don’t have the energy to take part in leisure activities because of my work. The scale ranges from 1 – I completely disagree to 5 – I completely agree.

3.3 Procedures

The questionnaire was administered online using Google Forms during June and July 2025. It was distributed in a Facebook group called “Everyone counts on Paula Franco”, administered by Dr. Paula Franco, president of the Portuguese Order of Certified Accountants. Subsequently, the Portuguese Order of Certified Accountants was asked to publicise the research on its social media networks (Facebook, Instagram, LinkedIn). This study is cross-sectional. All variables were measured using responses obtained from the same respondents through a self-report approach.

4. Results

4.1 Confirmatory Factor Analysis Work-life Conflict

A Confirmatory factor analysis was conducted for all dimensions using IBM SPSS Statistics, with principal component extraction and varimax rotation. Coefficients below ,50 were excluded to ensure a clearer factor structure.

A three-factor structure was found for work-life conflict (table 1), in line with prior research: work-family conflict (α = ,932), family-work conflict (α = ,851), and work-leisure conflict (α = ,881). The KMO value (,833) confirmed adequate sampling, and the scale showed good reliability (α = ,871).

Table 1: Principal component analysis of the work–life conflict scale

Items	Factors		
	Work-family conflict	**Family-work conflict**	**Work-leisure conflict**
1. I feel that my work prevents me from spending enough quality time with my family.	,898		
2. I feel that, at the end of the day, I don't have any time left to do the things I'd like to do at home (for example, housework).	,873		
3. I feel that my family suffers as a result of my work commitments.	,919		
4. I feel that my work has a negative impact on my family life.	,814		
6. I feel that my performance at work suffers as a result of my personal and family commitments.		,712	
7. I feel that my family concerns or responsibilities often distract me at work.		,779	
8. I think that if I didn't have a family, I'd be a better employee.		,763	
9. I feel that my family has a negative impact on my day-to-day work tasks.		,852	
10. I find it difficult to concentrate on my work because I am too exhausted due to my family responsibilities.		,828	
13. I feel I don't have the energy to take part in leisure activities because of my work.			,858
15. I feel that, because of my work, I am never in the right frame of mind to take part in leisure activities.			,844

4.2 Correlations and Regression Analysis

4.2.1 Correlations and regression analysis between work overload and work-life conflict

The work overload variable was obtained through the mean of scale items. This aggregate measure offers a synthetic analysis consistent with the proposed conceptual model. Work overload is positioned as a first-order construct (α = ,889).

Correlations and regression analysis between work overload and work-family conflict

After removing the outliers a significant positive correlation was found (r =,484; p < ,01), indicating that higher perceived work overload is associated with greater work-family conflict.

Table 2: Descriptive statistics and Pearson correlations between overall work overload and work-family conflict after outlier removal

	N	Mean	SD	Pearson correlations	
				work overload	work-family conflict
work overload	268	4,142	,884	_	_
work-family conflict	268	3,125	,795	,484**	_

** p < ,01

A linear regression analysis was conducted using the Enter method to examine the relationship between work overload and work-family conflict.

The linear regression revealed a positive and significant relationship between work overload and work-family conflict. As shown in Table 3, the unstandardized coefficient for work overload was B = ,539 (t = 9.026; p < ,001), indicating that each one-unit increase in work overload is associated with a ,539-unit increase in work-family conflict. The constant (B = 2.458) was also statistically significant (p < ,001), representing the predicted level of work-family conflict when work overload is zero.

The model equation is therefore:

Work-Family Conflict = 2,458 + ,539 × Work Overload

Table 3: Regression Analysis between work overload and work-family conflict

	Non padronized coefficients		**Padronized coefficients**	***t***	***p***
Model	**B**	**standard error**	**Beta**		
work-family conflict (constant)	2,458	,192		12,773	,000
Work overload	,539	,060	,484	9,026	,000

Dependent variable: work-family conflict

Overall, the model shows that work overload has a positive and statistically significant effect on perceived work-family conflict, confirming the relevance of this factor in the occupational context under study.

Correlations and regression analysis between work overload and family-work conflict

After removing the outliers a significant positive correlation was found (r = ,197; p < ,01), indicating that higher perceived work overload is associated with greater work-family conflict.

Table 4: Descriptive statistics and Pearson correlations between overall work overload and family-work conflict after outlier removal

	N	Mean	SD	Pearson correlations	
				workload	family-work conflict
work overload	271	2,168	,924	_	_
family-work conflict	271	3,123	,785	,197**	_

** p < ,01

A linear regression analysis was conducted using the Enter method to examine the relationship between work overload and family-work conflict.

The linear regression revealed a positive and significant relationship between work overload and work-family. As shown in Table 5, the unstandardized coefficient for work overload was B = ,232 (t = 3.295; p = ,001), indicating that each one-unit increase in workload is associated with a ,232-unit increase in family-work conflict. The constant (B = 1,445) was also statistically significant (p < ,001), representing the predicted level of family-work conflict when work overload is zero.

The model equation is therefore:

Family-Work Conflict = 1,445 + 0,232 × Work Overload

Table 5: Regression Analysis between Work Overload and Family-work Conflict

	Non padronized coefficients		**Padronized coefficients**	**t**	**p**
Model	**B**	**standard error**	**Beta**		
Family-Work Conflict (constant)	1,445	,226		6,378	,000
Work overload	,232	,070	,197	3,295	,001

Dependent variable: Family-Work Conflict

These results confirm that work overload is a relevant predictor of family-work conflict.

Correlations and regression analysis between work overload and work-leisure conflict

A significant positive correlation was found (r =,435; p < ,01), indicating that higher perceived work overload is associated with greater work-leisure conflict.

Table 6: Descriptive statistics and Pearson correlations between overall workload and work-leisure conflict

	N	**Mean**	**SD**	**Pearson correlations**	
				work overload	**work-leisure conflict**
work overload	272	3,789	1,121	**-**	_
work-leisure conflict	272	3,115	,794	,435**	_

** p < ,01

A linear regression analysis was conducted using the Enter method to examine the relationship between work overload and work-leisure conflict.

Regression coefficient analysis (Table 7) confirmed that the model was adequate and that work overload had a positive and significant effect on work-leisure conflict (B = ,615; t = 7.946; p < ,001). Each one-unit increase in work overload was associated with a ,615-unit increase in work-leisure conflict. The constant (B = 1.874) was also statistically significant (p < ,05), representing the predicted level of work-leisure conflict when work overload is zero.

The model equation is therefore:

Work-Leisure Conflict = 1,874 + ,615 × Work Overload

Table 7: Regression Analysis between work overload and work-leisure conflict.

	Non padronized coefficients		Padronized coefficients	*t*	*p*
Model	**B**	**standard error**	**Beta**		
work-leisure conflict (constant)	1,874	,249		7,535	,000
Work overload	,615	,077	,435	7,946	,000

Dependent variable: work-leisure conflict

These results confirm that work overload is a significant predictor of work-leisure conflict, reinforcing that higher job demands reduce individuals' time and availability for leisure activities, thereby undermining work-life balance. Overall, these findings support Hypotheses 1 and 2, demonstrating that work overload contributes to increased conflict between the professional and personal spheres.

5. Discussion and Conclusions

The measurement model performed well: the confirmatory factor analysis retained a coherent three-factor structure for work–life conflict (work–family, family–work and work–leisure), and both the work overload and conflict scales showed satisfactory internal consistency. This gives confidence that the pattern of relationships reported below reflects substantive differences between domains of conflict rather than measurement artefacts.

Hypothesis 1 proposed that work overload would be positively related to work–life conflict amongst accountants. This was confirmed across all three dimensions, with work overload emerging as a significant positive predictor of work–family conflict (β = ,484), work–leisure conflict (β = ,435) and, more modestly, family–work conflict (β = ,197). Rather than treating this as a set of isolated confirmations, these findings can be read as direct empirical support for the resource-depletion mechanism proposed by Conservation of Resources theory (Hobfoll, 1989). COR theory holds that individuals seek to protect a finite pool of resources – principally, in this context, time and energy – and that stress and conflict arise when these resources are threatened, depleted or invested without adequate return. Work overload, by definition, represents a sustained drain on exactly these resources: accountants facing deadline pressure, high task volume and constant client and supervisor demands are left with correspondingly less time and psychological energy to invest in family and leisure roles. The consistency of the positive effect across all three outcome variables is therefore not merely a replication of prior findings but a demonstration that resource depletion generalises across the domains into which the depleted resources would otherwise have flowed. In this sense, the results support and reinforce the core logic of COR theory rather than simply corroborating it as a background reference. The results are also consistent with previous studies (Amazue and Lawrence, 2013; Lott and Wöhrmann, 2022).

The results also allow the two principal conflict-generating mechanisms identified by Greenhaus and Beutell (1985) to be distinguished empirically. Time-based conflict – in which time devoted to the work role is, by definition, unavailable for other roles – is the most direct explanation for the strong effect of overload on work–leisure conflict, since leisure activities are typically the most discretionary and therefore the first to be sacrificed when working hours expand or intensify. Strain-based conflict – in which fatigue, tension or anxiety generated in one role is carried into another – offers the more plausible explanation for the effect on work–family conflict, since family life is less easily postponed than leisure but is nonetheless vulnerable to the emotional and physical exhaustion that accompanies sustained overload.

Hypothesis 2 anticipated that the impact of work overload would be greater on work-to-life conflict than on life-to-work conflict, and this asymmetry was observed. This pattern corroborates and extends the boundary-permeability argument advanced by Ashforth et al. (2000). Their account holds that the boundary surrounding the work role is comparatively impermeable, being reinforced by organisational norms, formal schedules and external accountability (to clients, supervisors and regulatory deadlines), whereas the boundaries surrounding family and leisure roles are more informal and therefore more easily crossed by demands originating in the

work domain. The results are also consistent with previous studies (Abendroth and Dulk, 2011; Boamah et al., 2022; Jang and Zippay, 2011).

The present findings show that the asymmetry is not confined to the general work–family distinction typically examined in the literature but extends to leisure, a domain that is, if anything, even less formally protected than family life and therefore even more exposed to spillover from overload. These theoretical mechanisms also help to explain why the accountancy context appears to intensify the effects reported here relative to less deadline-driven occupations. Because tax and reporting deadlines are externally imposed and largely non-negotiable, accountants have limited scope to buffer overload by renegotiating work boundaries, which, from a COR perspective, removes one of the principal coping routes (resource substitution or boundary renegotiation) through which employees in more flexible occupations might otherwise protect family and leisure time. This is consistent with, but goes beyond, prior descriptive accounts of the profession's demands (Paul and Nazareth, 2010; Rafiq et al., 2022): the present results suggest a specific mechanism – restricted boundary control – through which occupational characteristics translate into the asymmetric conflict pattern observed.

Theoretical and practical implications. Theoretically, the study supports the applicability of COR theory and boundary theory to a professional context in which resource loss is structurally embedded in the nature of the work itself, and it qualifies boundary theory by showing that the permeability asymmetry it predicts also holds for leisure, not only for family. Redistributing tasks more equitably and calibrating workloads to realistic capacity would address the resource-depletion pathway directly, by reducing the drain on time and energy at its source. Flexible working arrangements, teleworking and time-banking schemes would address the boundary-permeability pathway, by giving employees greater control over where the work boundary is drawn, rather than leaving it fixed by external deadlines. Organisational support – supervisory understanding, realistic deadline-setting and adequate staffing – can further be understood, in COR terms, as a resource-replenishing mechanism.

Limitations and future research. The cross-sectional, self-report design does not permit causal inference, and the data were collected during a period of seasonally elevated workload in the profession, which may have inflated reported levels of both overload and conflict. All the variables were measured from the same respondents at a single point in time and the study may be susceptible to common method bias. The convenience sample, recruited via professional social media channels, may also over-represent accountants already engaged with work–life balance issues, introducing a degree of self-selection bias. Future research would benefit from longitudinal designs capable of testing the resource-depletion and boundary-permeability mechanisms proposed here more directly, for instance through diary studies capturing within-person fluctuations in overload and conflict over the tax cycle. It could be important incorporating moderating and mediating variables such as perceived organisational support, schedule control or autonomy as resource-replenishing or boundary-strengthening factors.

Acknowledgement

This work was supported by national funds through FCT/MCTES (PIDDAC): UID/04752 – Applied Management Research Unit (UNIAG).

Ethics Declaration: This study did not require ethical clearance for the research referred to in this paper.

AI Declaration: The authors utilized Grammarly, an AI-based writing assistant, solely to enhance language clarity, grammar, and style. All conceptual contributions, analyses, and conclusions presented in this manuscript are entirely the responsibility of the authors.

References

Abendroth, A.K. and Dulk, L. (2011). “Support for the work-life balance in Europe: the impact of state, workplace and family support on work-life balance satisfaction”, *Work, Employment and Society*, Vol 25, No. 2, pp 234–256. https://doi.org/10.1177/0950017011398892

Amazue, A. and Lawrence, O. (2013). “Impact of work and family involvement on work-family conflict of non-professional Igbo Nigerian employees”, *African Journal of Business Management*, Vol 7, No. 16, pp 1515–1521. https://doi.org/10.5897/ajbm12.1209

Anam, A. K., Widiastuti, A. and Rofiq, F. (2020). “Workplace spirituality and job crafting: efforts to eliminate the impact of work overload”, *Journal of Management and Entrepreneurship Research*, Vol 1, No.1, pp 13–23. https://doi.org/10.34001/jmer.2020.6.01.1-2

Ashforth, B. E., Kreiner, G. E. and Fugate, M. (2000). "All in a day's work: Boundaries and micro role transitions", *Academy of Management Review*, Vol 25, No.3, pp 472-491. Doi: 10.2307/259305

Boamah, S. A. et al. (2022). "Striking a Balance between Work and Play: The Effects of Work–Life Interference and Burnout on Faculty Turnover Intentions and Career Satisfaction", *International Journal of Environmental Research and Public Health*, Vol 19, No. 2, pp 809. https://doi.org/10.3390/ijerph19020809

Duxbury, L., Higgins, C. and Halinski, M. (2014). "Identifying the Antecedents of Work-Role Overload in Police Organizations", *Criminal Justice and Behavior*, Vol 42, No. 4, pp 361–381. https://doi.org/10.1177/0093854814551017

Greenhaus, J. H. and Beutell, N. J. (1985). "Sources of Conflict between Work and Family Roles", *The Academy of Management Review*, Vol 10, No. 1, pp 76–88. https://doi.org/10.2307/258214

Guest, D. E. (2002). "Perspectives on the Study of Work-life Balance", *Social Science Information*, Vol 41, No. 2, pp 255–279. https://doi.org/10.1177/0539018402041002005

Haslam, D. et al. (2015). "The Work–Family Conflict Scale (WAFCS): Development and Initial Validation of a Self-report Measure of Work–Family Conflict for Use with Parents", *Child Psychiatry & Human Development*, Vol 46, No. 3, pp 346–357. https://doi.org/10.1007/s10578-014-0476-0

Hobfoll, S. E. (1989). "Conservation of resources: A new attempt at conceptualizing stress", *American Psychologist*, Vol 44, No. 3, pp 513–524. https://doi.org/10.1037/0003-066X.44.3.513

Hui, S. A. et al. (2023). "The Relationship between Work-Life Balance, Job Satisfaction, and Turnover Intention among Accounting Personnel in Public Accounting Firms", *Journal of Cognitive Sciences and Human Development*, Vol 9, No. 2, pp. 63–88. https://doi.org/10.33736/jcshd.5795.2023

Jang, S. J. and Zippay, A. (2011). "The Juggling Act: Managing Work-Life Conflict and Work-Life Balance. *Families in Society", The Journal of Contemporary Social Services*, Vol 92, No. 1, pp 84–90. https://doi.org/10.1606/1044-3894.4061

Kennell, R. (2021). "*Too much, too little: When workload affects wellbeing"* [white paper]. InVista.

Lequeurre, J. et al. (2013). "Validation of a French Questionnaire to Measure Job Demands and Resources", *Revue Internationale de Psychologie Sociale*, Vol 26, No. 4, pp 93-124. https://shs.cairn.info/journal-revue-internationale-de-psychologie-sociale-2013-4-page-93?lang=en

Lott, Y. and Wöhrmann, A. M. (2022). "Spillover and crossover effects of working time demands on work–life balance satisfaction among dual-earner couples: the mediating role of work–family conflict", *Current Psychology*, Vol 42. https://doi.org/10.1007/s12144-022-03850-0

Mansour, S. and Tremblay, D.G. (2016). "How the need for "leisure benefit systems" as a "resource passageways" moderates the effect of work-leisure conflict on job burnout and intention to leave: A study in the hotel industry in Quebec", *Journal of Hospitality and Tourism Management*, Vol 27, pp 4–11. https://doi.org/10.1016/j.jhtm.2016.02.002

Paul, S. and Nazareth, D. L. (2010). "Input information complexity, perceived time pressure, and information processing in GSS-based work groups: An experimental investigation using a decision schema to alleviate information overload conditions", *Decision Support Systems*, Vol 49, No. 1, pp 31–40. https://doi.org/10.1016/j.dss.2009.12.007

Rafiq, I. et al. (2022). "Does Emotional Intelligence Dwindle the Stress Due to Time Pressure and Work Overload? A Case Study of Nurses in Public Hospitals", *Journal of Contemporary Issues in Business and Government,* Vol 28, No. 1, pp 467-478. https://doi.org/10.47750/cibg.2022.28.01.032

Shields, B. and Chen, C. (2021). "Examining the relationship between work-life conflict and burnout", *Journal of the National Institute for Career Education and Counselling*, Vol 47, No 1, pp. 67–76. https://doi.org/10.20856/jnicec.4710

Williams et al. (2021). "Work Overload Implications on the Health of Employees in the Banking Sector, Nigeria", *Journal of Research in Humanities and Social Science*, Vol 9, No. 5, pp 19-28.

Wong, J.-Y. and Lin, J.-H. (2007). "The role of job control and job support in adjusting service employee's work-to-leisure conflict", *Tourism Management*, Vol 28, No. 3, pp 726–735. https://doi.org/10.1016/j.tourman.2006.05.003

Building an Interdisciplinary Additive Manufacturing Ecosystem: A Case Study of TUM.Additive

Sreeja Gadhiraju[1], Katrin Wudy[2] and Peter Mayr[3]
[1]TUM.Additive, Technical University of Munich, Germany
[2]Laser-based Additive Manufacturing, Technical University of Munich, Germany
[3]Materials Engineering of Additive Manufacturing, Technical University of Munich, Germany

sreeja.gadhiraju@tum.de (Corresponding author)
katrin.wudy@tum.de
peter.mayr@tum.de

Abstract: Additive manufacturing (AM) is an intrinsically interdisciplinary technology, spanning materials science, process and mechanical engineering, and design, with applications from construction and aerospace to medicine and the life sciences. Its industrial relevance depends on combining innovative process technologies with strong application potential, yet this is frequently constrained by fragmented expertise across materials, design, and application disciplines. Research entities such as universities tend to reproduce this fragmentation because resources, incentives, and reputation are organised around individual chairs, professorships and departments. This paper asks how an interdisciplinary AM ecosystem is built and coordinated within a university, and which mechanisms enable and constrain that process. We address the question through a single, revelatory case study of TUM.Additive, a mission network at the Technical University of Munich uniting thirty-five chairs and professorships from seven TUM schools and over one hundred researchers, spanning all seven DIN EN ISO/ASTM 52900 process categories and five material groups. We read the case through a triple helix lens, complemented by entrepreneurial ecosystem theory, and analyse it using the network's three coordination mechanisms: Connect, Collaborate, and Communicate. This study highlights that intra-university ecosystem building depends on the active, coordinated operation of these three mechanisms to overcome institutional friction. It contributes to the triple helix and entrepreneurial ecosystem literatures by extending them to the underexamined intra-university level, offering a transferable framework for research-network builders.

Keywords: Entrepreneurial ecosystems, Triple helix, Additive manufacturing, Interdisciplinarity, University innovation, Research-network coordination

1. Introduction

Additive manufacturing has moved, over the past two decades, from a rapid-prototyping niche to a strategically significant field of industrial and academic activity (Ngo et al., 2018). Its defining characteristic as a research object is that it cannot be owned by any single discipline: a metal lattice, a bioresorbable implant, and a 3D-printed concrete structure each require the simultaneous engagement of materials scientists, engineers, clinicians, and designers. AM becomes relevant only when innovative process technologies meet strong application potential, yet that combination is repeatedly hindered by fragmented expertise across the disciplines involved.

This fragmentation is reinforced by the university's organisational reality, which allocates people, budgets, and reputation to individual chairs, professorships, or departments. The result is a coordination problem: the technology pulls towards integration while the institution pushes towards fragmentation. Bridging the two is a precondition not only for coherent research but for translation, that is, for moving AM-powered innovations towards industrialisation with a genuine application focus.

Much of the innovation-studies literature that speaks to this problem operates at the regional or national scale: clusters, regional innovation systems, and entrepreneurial ecosystems are typically theorised as geographies rather than as intra-organisational arrangements. Comparatively little attention was paid to how an ecosystem is deliberately constructed within a single university, across its internal boundaries, and alongside its engagement with industry and government. Yet this is precisely the arena in which many emerging technologies are first assembled into a coherent research and translation agenda.

This paper examines that arena through the case of TUM.Additive, the additive manufacturing mission network at the Technical University of Munich (TUM). It asks a single guiding question: how is an interdisciplinary AM ecosystem built and coordinated within a research university, and what mechanisms enable and constrain that process? We approach the case through the triple helix model of university, industry, and government relations, complemented by entrepreneurial ecosystem theory, and operationalise the analysis using the network's own framework of three coordination mechanisms: Connect, Collaborate, and Communicate.

The contribution is threefold. First, we extend ecosystem and triple helix thinking to the intra-university level, treating the university not merely as one node in a larger helix but as a miniature ecosystem in its own right that must be actively integrated. Second, we offer an empirically grounded account of the coordination work, much of it relational and communicative rather than technical, that holds such an ecosystem together. Third, we propose a transferable framework that other research-network builders can apply.

2. Theoretical Background

2.1 The Triple Helix and the Entrepreneurial University

This paper reads TUM.Additive as a triple helix configuration operating within and around a single university, and so requires the model theorising how value arises between institutional spheres. The triple helix model conceptualises innovation as emerging from the overlapping, increasingly reciprocal relations among university, industry, and government rather than from any one sphere alone (Etzkowitz and Leydesdorff 2000). A central claim is that the university assumes an entrepreneurial role, adding a third mission to teaching and research: economic and social development (Etzkowitz 2003; Gibbons et al. 1994). While the model is usually applied to relations between distinct institutional spheres, its underlying logic, that value is created in the overlaps, hybrids, and boundary organisations forming between them (Cai and Etzkowitz, 2020), can be extended inward to the overlaps between disciplinary units inside a single university, while industry and government remain present as the outer spheres of the ecosystem.

2.2 Entrepreneurial and Innovation Ecosystems

This paper's concern, how an innovation ecosystem is deliberately built and held together inside a single university, makes the entrepreneurial and innovation ecosystem literature relevant. Ecosystem approaches shift attention from linear pipelines to the interdependent actors, resources, and relationships that jointly produce innovative and entrepreneurial outcomes (Isenberg 2010; Stam 2015; Spigel 2017). Two features are relevant to TUM.Additive as a built and maintained ecosystem. First, ecosystems are held together less by hierarchy than by relational and informational ties, making coordination and orchestration central. Second, they are increasingly recognised as requiring active orchestration by identifiable actors rather than emerging spontaneously (Harima et al. 2024). This study builds directly on both features and asks what orchestration looks like when the ecosystem is bounded by a single institution.

2.3 Interdisciplinarity and Additive Manufacturing as a Boundary Technology

The coordination demands this paper explains are rooted in additive manufacturing itself. AM is usefully understood as a boundary technology: an object whose development recruits multiple communities of practice and, because it sits between them, continually generates coordination demands. The concept of the boundary object originates with Star and Griesemer (1989) and was extended to the technologies of the Fourth Industrial Revolution, including additive manufacturing (Krafft et al., 2020). The interdisciplinarity literature has long noted that cross-disciplinary work is impeded by differences in vocabulary, epistemic standards, publication norms, and incentive structures (Klein, 1990; Jacobs and Frickel, 2009). At the university, the chair system amplifies these frictions by rewarding disciplinary prestige over integration. Consequently, an intra-university AM ecosystem must work directly against this institutional gradient.

2.4 Research gap

Together, the triple helix, ecosystem, and interdisciplinarity literatures leave a gap: the former focus on inter-organisational dynamics rather than internal university ecosystems, while the latter details frictions without specifying network-wide coordination mechanisms. The aim of this paper is therefore to identify and characterise the coordination mechanisms through which an interdisciplinary ecosystem is built and sustained within a single university, together with the tensions that constrain that process, and to establish how these mechanisms extend triple helix and ecosystem theory to the intra-university level.

3. Research Context and Methodology

3.1 Research Design and Case Selection

The coordination problem set out in Sections 1 and 2, that AM generates integrative demands a chair-based university is not structured to meet, calls for a design that traces how coordination is accomplished in practice. This paper therefore uses a single-case study design, examining TUM.Additive in depth rather than comparing many cases. This approach suits "how" questions about contemporary phenomena the researcher cannot

manipulate (Yin 2018) and matches this paper's question directly. TUM.Additive is a university-wide AM network at the Technical University of Munich, uniting thirty-five chairs and professorships across all seven TUM schools under a dedicated coordination function (Section 4). It is selected not as a representative or typical case but as a *revelatory* one: a deliberately constructed, formally governed, university-wide AM network that makes visible coordination dynamics which are usually tacit or dispersed. Single revelatory cases are valued for the analytical depth and theoretical insight they afford, with generalisation understood as analytic (to theory) rather than statistical (to a population) (Eisenhardt 1989; Yin 2018).

Case context and data sources

The evidence base draws on multiple sources. First, the network's public and institutional documentation: its mission statement and community listing, its curated publication records, and its strategic and communication materials, including the network's image and pitch presentations. The network's representation of member research is compiled from the chairs' public websites, and the equipment listed for collaboration is verified by email with each chair's point of contact before publication, making both traceable to verifiable sources. Second, records of recurring activities like PhD seminars, the AMeetUp series, and trade fairs. Third, first-author participant observation as network coordinator, providing direct insight into daily ecosystem maintenance. Documentary sources and participant-observation notes were analysed thematically, using the Connect, Collaborate, and Communicate framework set out in Section 3.2 as the coding structure. Each item was coded against the three mechanisms to group and compare recurring practices. Multi-mechanism activities were double-coded to trace interactions. Triangulating documents with direct observation filtered out one-off events and reduced single-source bias.

3.2 Analytical Framework: The Three Coordination Mechanisms (Connect, Collaborate, Communicate)

To structure the analysis, we use the network's own framework of three coordination mechanisms. *Connect* is the relational work of linking previously unconnected units and sustaining those links. *Collaborate* is the conversion of connection into joint output and translation, through co-initiated projects, consortia, and start-up and industry engagement. *Communicate* makes the network's research and its shared resources visible and accessible, rendering dispersed activity legible and actively enabling collaboration. We treat these three mechanisms analytically as the means by which intra-university and university-to-industry overlaps are actively produced rather than assumed, and we map each onto the triple helix relations it primarily serves.

3.3 Reflexivity and Limitations

The first author holds the science-management role within TUM.Additive. This insider position affords access and interpretive depth but also potential bias; we treat it reflexively, distinguishing observed mechanisms from advocacy and triangulating observation against documentary evidence where possible. As a single case, the study makes no claim to statistical generalisation. Its contribution is analytic: to sharpen and extend theory about intra-university ecosystem building, and to offer a framework that future comparative work can test.

4. The Case: TUM.Additive

4.1 Mission, Structure, and Scope

TUM.Additive is a mission network at the Technical University of Munich that unites the university's additive manufacturing expertise into an integrative, interdisciplinary research ecosystem. Founded in 2022, its defining feature is breadth. Rather than sitting within a single faculty, the network bundles AM activity from thirty-five chairs and professorships and over one hundred researchers, spanning all seven schools of TUM and covering fields from materials science, mechanical, process, and civil engineering, and design, to chemistry, medicine, the life sciences, informatics, and the economics of innovation. Its research covers all seven DIN EN ISO/ASTM 52900 process categories and five material groups, supported by a large installed base of AM systems giving near-complete in-house coverage of established and emerging methods, and complemented by more than fifty lectures across its departments. This breadth is the network's central asset and its central coordination challenge: it assembles the full disciplinary range that AM demands, while inheriting the full heterogeneity of incentives and cultures that the chair system produces.

4.2 Governance and Coordination

The network is academically co-led by two scientific coordinators from complementary domains: laser-based additive manufacturing, within the Department of Mechanical Engineering, and materials engineering of additive manufacturing, within the Department of Materials Engineering. This pairing itself embodies the

interdisciplinary logic of the enterprise. Day-to-day coordination is carried out by a dedicated science-management function that performs the connective, collaborative, and communicative work analysed in this paper. This central function is complemented by a distributed structure in which each chair provides a single point of contact, giving the network a hub-and-spoke architecture: one central coordinator linked to one liaison in every member chair. Governance is soft rather than hierarchical: the coordination function holds no formal authority over the chairs and cannot direct their resources, so decisions about joint activity are reached by convening, proposing, and securing voluntary commitment. The network therefore governs through consent and persuasion rather than command. This separation between academic leadership and operational coordination is analytically important: it locates much of the ecosystem-orchestration work in identifiable roles rather than leaving it to emerge spontaneously from the chairs. The network's autonomy is limited in a specific way. Embedded in and funded by the university, it holds no independent budget or authority, yet it also stands outside the chairs' own command structures, coordinating actors it cannot direct. This produces a distinctive autonomy paradox: the network depends on the university for its existence but relies on persuasion, not hierarchy, to act. Its independence lies not in freedom from university governance but in the operational latitude to broker coordination the formal structure does not provide.

4.3 The Ecosystem and its Industry Node

Beyond its internal breadth, TUM.Additive presents itself as a four-part ecosystem spanning science, entrepreneurship, industry-on-campus, and industry partners, making the triple helix concrete within and around a single university. Science is the academic core. Industry-on-campus is embodied in the TUM-Oerlikon Advanced Manufacturing Institute, a boundary organisation linking the university and the industrial partner Oerlikon. The entrepreneurship strand, anchored by TUM Venture Labs AM supporting start-ups, represents the capitalisation of knowledge emphasised in the entrepreneurial-university literature. The industry-partner strand connects to government through Bavaria Makes, Bavaria's High-Tech Alliance for the Manufacturing of the Future, an association supported by the Free State that unites companies, universities, and research institutions to industrialise additive manufacturing. Bavaria Makes participates directly in the network's activities, from its PhD seminars to the joint presence at Formnext, so that government is not a distant funder but an active convenor of university and industry actors, completing the triple helix depicted in Figure 1.

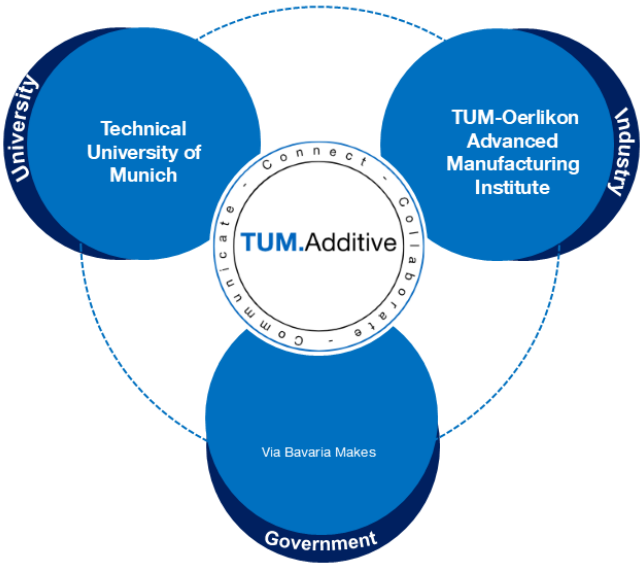


Figure 1: TUM.Additive as a coordinating hub, applying Connect, Collaborate, and Communicate to link the university (Technical University of Munich), industry (TUM-Oerlikon Advanced Manufacturing Institute), and government (reached through the Bavaria Makes alliance) spheres of the triple helix

5. Findings

TUM.Additive operates as one coordinating activity within the broader additive manufacturing environment of the Technical University of Munich, linked outward to the university's industry and government partners through the TUM-Oerlikon Advanced Manufacturing Institute and the Bavaria Makes initiative described in Section 4. The findings that follow concentrate on the layer that this paper takes as its contribution: the internal, intra-

university work of building and holding the ecosystem together across the chairs. We organise these findings around the network's three coordination mechanisms, in the order in which they operate, Connect, then Collaborate, then Communicate, and then draw out the enablers and tensions that cut across them. Each mechanism is read as a way of actively producing the overlaps on which the ecosystem depends, while the external partnerships of Section 4 remain the outer frame. Table 1 summarises the mechanisms and their principal activities, each examined in turn below.

Table 1: The three coordination mechanisms and their principal activities in TUM.Additive

Mechanism	What it does	Activities in TUM.Additive
Connect	Brings chairs and researchers together to foster interdisciplinary projects	PhD Seminar Series; Chair Visits; Ameet Series; Know Our Members series on LinkedIn
Collaborate	Converts connections into joint projects, consortia, and start-up and industry engagement	Formnext (joint booth); EuroTeQ Collider mentoring; AMI Monthly Minds
Communicate	Makes research outputs and shared resources visible and accessible	AM Publication database; Paper Spotlight on LinkedIn; Facilities Wiki

5.1 Connect: Boundary-spanning as the Primary Building Act

The first finding is that the ecosystem is built, above all, through sustained connective work. Because the constituent chairs have no structural obligation to cooperate, links between them must be actively created and maintained rather than assumed. Much of this work is concentrated in the science-management function, which spans the internal boundaries of the university, identifies complementary capabilities across chairs, and convenes them around shared opportunities. This work is made durable by a network of designated points of contact, one per chair, giving the central function a reliable channel into every member unit and turning an informal web of relationships into a maintainable structure. It is sustained through recurring formats that give members regular, low-cost occasions to discover one another's work and to connect beyond the university: the PhD seminar series institutionalises encounters among early-career researchers, chair visits build direct relationships between the coordination function and individual units, the AMeetUp networking series, organised with TUM Venture Labs AM, connects researchers with the start-up community, and the Know Our Members series on LinkedIn makes individual members and their expertise visible across the network. In triple helix terms, the value the model locates in the overlaps between spheres has an intra-university counterpart: the overlaps between disciplines do not pre-exist but must be actively created, and this connective work is how they are brought into being.

5.2 Collaborate: Converting Ties Into Joint Output and Translation

The second finding is that connection is validated by collaboration: the joint proposals, co-initiated projects, consortia, and start-up and industry engagements through which the ecosystem produces value that no single chair could produce alone. This is where the network's interdisciplinary premise is tested and, when successful, borne out, and the conversion operates through several channels. The joint booth at Formnext, the sector's principal international trade fair, gives members a shared platform to present their work to industry and to initiate contact with potential partners. EuroTeQ Collider mentoring brings researchers together as volunteer mentors to support student teams on a common annual challenge, drawing their expertise into joint work around a shared problem. The AMI Monthly Minds meetings bring the TUM-Oerlikon Advanced Manufacturing Institute's researchers together to share findings and develop project proposals, converting shared presence into proposal-stage collaboration. Together, these channels reach across the network's internal, entrepreneurial, and industry boundaries.

A concrete instance shows how the mechanisms feed one another. The Chair of Materials Science approached TUM.Additive for specific equipment; using the Facilities Wiki (Section 5.3), the science-management function identified a match and connected it to the Chair of Carbon Composites, and the two now intend to co-author a paper. Though no output has yet resulted, the sequence, from resource enquiry, through brokered connection, to intended joint publication, shows connective and communicative work converting into collaboration in progress. At a larger scale, a proposal is currently being developed for a bilateral workshop under the Indo-German Science & Technology Centre (IGSTC), bringing together three chairs, the Bavaria Makes initiative, and industry partners, and thereby spanning the university, government, and industry spheres.

5.3 Communicate: Visibility and Shared Access to Resources

The third finding is that a shared communication infrastructure is not a cosmetic add-on but a core coordination mechanism. It operates in two complementary ways, delivered through three connected instruments. First, it showcases AM research and publications within the ecosystem, rendering a set of parallel activities into a recognisable collective actor. The monthly Paper Spotlight on LinkedIn surfaces an individual member's publication to the wider network, giving dispersed research a regular, shared point of visibility. The AM Publication database extends this from the individual to the collective: a consolidated, year-by-year record that brings together more than 270 publications between 2022 and 2025, drawn from chairs across all seven schools, into a single visible list. The network maintains this record across both of TUM's publication databases, the established MediaTUM and the newly introduced TUMFIS platform, which it adopted as soon as it became available, illustrating the ongoing work of keeping the network's output visible. Second, and less obviously, it creates a commonly accessible platform that makes the network's resources open for collaboration, namely its facilities, materials, machines, and manufacturing capabilities, transparent and easy to locate. This is the function of the Facilities Wiki, a maintained inventory of the equipment members make available to one another, currently listing over 150 items across four categories: 96 AM printers, 10 simulation tools, 24 analysis devices, and 29 further pieces of equipment. Crucially, this inventory is not assumed but verified: each entry is confirmed by email with the relevant chair's point of contact before publication, so the platform functions as a trustworthy and maintained resource rather than a static snapshot, and the same points of contact that enable connection keep it current.

Together, these instruments turn communication into an enabler of collaboration rather than a mere record of it. A dispersed network is, by default, invisible to its members, the wider university, and external partners; by making both its outputs and resources visible, it lowers the barriers to the collaborations described in Section 5.2, as the equipment enquiry linking the Chair of Materials Science to the Chair of Carbon Composites illustrates.

5.4 Enablers and Tensions

Across the three mechanisms, two enablers recur. The first is dual, cross-domain academic leadership that legitimises interdisciplinary effort from the top; the second is a dedicated operational coordination function that supplies the connective, collaborative, and communicative labour from the middle. Two external anchors reinforce these: a boundary institute linking the university and industry, and a venture-lab route to entrepreneurship, which together give the internal network durable external partners. Two tensions also recur, and together they constitute the principal barriers to synergy in the network's cooperative mode. The first is chair-level autonomy: because chairs retain control over their own resources and priorities, participation is largely voluntary and must be continually re-earned. The second is incentive misalignment: academic reward systems still privilege disciplinary output, so the network's integrative work competes with individually rational disciplinary strategies. The coordination mechanisms mitigate these tensions by lowering the cost of cooperation and raising its payoff, but do not dissolve them.

6. Discussion

These findings speak back to the literature reviewed in Section 2. For the triple helix theory, the case suggests that the model's core intuition, that value is produced in the overlaps between spheres, applies not only between the university, industry, and government, but also within the university, between its own disciplinary spheres. TUM.Additive's four-part ecosystem suggests that the helix operates at two levels at once: an internal helix of disciplines and an external helix of science, industry, and public funding, joined by boundary organisations and an entrepreneurship route. The university is therefore not simply one node in the helix; it is itself a site, where helical, overlap-producing dynamics must be actively cultivated before the external helix can be effectively engaged.

For ecosystem theory, the case underscores the centrality of orchestration: the ecosystem does not emerge spontaneously from the co-presence of chairs but is built and sustained by identifiable coordinating actors, showing what stewardship concretely involves at the intra-organisational scale.

For practice, the framework offers research-network builders a compact diagnostic: weakness in any one mechanism predicts a characteristic failure mode, whether isolated chairs, activity without shared results, or an invisible network whose resources no one can find. Although the case concerns additive manufacturing, the same three mechanisms plausibly apply to any emerging, boundary-crossing technology, which is where the framework's broader relevance lies.

7. Conclusion

This paper asked how an interdisciplinary additive manufacturing ecosystem is built and coordinated within a research university. Its central argument is that such ecosystems do not emerge on their own but must be actively orchestrated across disciplinary and institutional boundaries. The study approached this through a revelatory case study of TUM.Additive, examined not as a triple helix in itself but as the university actor within a wider triple helix of university, industry, and government, and analysed using the network's own three coordination mechanisms. The analysis showed that such ecosystems are built through sustained connective work, made productive through collaboration that converts ties into joint, translation-oriented output, and made durable through communication that renders the network visible and opens its resources for collaboration, all against the institutional gradient of a chair-based university and supported by external boundary organisations and an entrepreneurship route.

The study's contribution is to extend triple helix and entrepreneurial-ecosystem thinking to the intra-university scale, to specify the coordination work it demands, and to offer a transferable framework for research-network builders. Its principal limitation is the single case; it invites comparative work across universities and technologies to test the claims advanced here. As additive manufacturing and other boundary technologies continue to demand integration that institutions are not naturally built to provide, understanding how such ecosystems are deliberately assembled becomes a question of both scholarly and practical consequence.

Acknowledgements

The author is grateful to the founding pillars of the TUM.Additive mission network funded by the Technical University of Munich, whose vision and effort established the ecosystem described in this paper: the two scientific coordinators, Professors Katrin Wudy and Peter Mayr; Dr. Sascha Schwarz, CTO of TUM Venture Labs AM, and the network's previous science coordinator, Christina Kwade, M.Sc. The author also gratefully acknowledges the Technical University of Munich, which funded the science-management position from which this work was carried out.

Ethics Declaration: This study draws on publicly available institutional documentation and the first author's participant observation in a professional coordination role. It did not involve human-subject experimentation or the collection of personal data and therefore did not require formal ethical clearance.

AI Declaration: During the preparation of this manuscript, the authors used Grammarly and Claude (Anthropic) for language editing and paraphrasing. All research, data collection, analysis, structure, interpretations, and conclusions were carried out by the authors, who take full responsibility for the final text.

References

Bavaria Makes (n.d.) Home, [online], Bavaria Makes e.V. i.G., available at: https://www.bavariamakes.de/ [accessed 5 August 2026].

Cai, Y. and Etzkowitz, H. (2020) "Theorizing the Triple Helix model: past, present, and future", *Triple Helix*, Vol. 7, No. 1, pp. 1–38. doi:10.1163/21971927-bja10003.

Eisenhardt, K. M. (1989) “Building theories from case study research”, Academy of Management Review, Vol. 14, No. 4, pp. 532–550.

Etzkowitz, H. (2003) “Research groups as ‘quasi-firms’: the invention of the entrepreneurial university”, Research Policy, Vol. 32, No. 1, pp. 109–121.

Etzkowitz, H. and Leydesdorff, L. (2000) “The dynamics of innovation: from National Systems and ‘Mode 2’ to a triple helix of university–industry–government relations”, Research Policy, Vol. 29, No. 2, pp. 109–123. doi:10.1016/S0048-7333(99)00055-4.

Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P. and Trow, M. (1994) The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies, Sage, London.

Harima, A., Harima, J. and Freiling, J. (2024) “Ecosystem orchestration: unpacking the leadership capabilities of anchor organisations in nascent entrepreneurial ecosystems”, Entrepreneurship Theory and Practice, Vol. 48, No. 6, pp. 1404–1450. doi:10.1177/10422587241241824.

Isenberg, D. J. (2010) “How to start an entrepreneurial revolution”, Harvard Business Review, Vol. 88, No. 6, pp. 40–50.

Jacobs, J. A. and Frickel, S. (2009) “Interdisciplinarity: a critical assessment”, Annual Review of Sociology, Vol. 35, pp. 43–65. doi:10.1146/annurev-soc-070308-115954.

Klein, J. T. (1990) Interdisciplinarity: History, Theory, and Practice, Wayne State University Press, Detroit, MI.

Krafft, M., Sajtos, L. and Haenlein, M. (2020) “Challenges and opportunities for marketing scholars in times of the Fourth Industrial Revolution”, Journal of Interactive Marketing, Vol. 51, pp. 1–8. doi:10.1016/j.intmar.2020.06.001.

Ngo, T.D., Kashani, A., Imbalzano, G., Nguyen, K.T.Q. and Hui, D. (2018) 'Additive manufacturing (3D printing): A review of materials, methods, applications and challenges', *Composites Part B: Engineering*, 143, pp. 172–196.

Spigel, B. (2017) "The relational organisation of entrepreneurial ecosystems", Entrepreneurship Theory and Practice, Vol. 41, No. 1, pp. 49–72. doi:10.1111/etap.12167.

Stam, E. (2015) "Entrepreneurial ecosystems and regional policy: a sympathetic critique", European Planning Studies, Vol. 23, No. 9, pp. 1759–1769. doi:10.1080/09654313.2015.1061484.

Star, S. L. and Griesemer, J. R. (1989) "Institutional ecology, 'translations' and boundary objects: amateurs and professionals in Berkeley's Museum of Vertebrate Zoology, 1907–39", Social Studies of Science, Vol. 19, No. 3, pp. 387–420. doi:10.1177/030631289019003001.

TUM.Additive (n.d.) Home, [online], Technical University of Munich, available at: https://www.mission-networks.tum.de/en/tumadditive/home/ [accessed 31 July 2026].

Yin, R. K. (2018) Case Study Research and Applications: Design and Methods, 6th ed., Sage, Thousand Oaks, CA.

The Social Impact Assessments (SIA) and Environmental Impact Assessments (EIA) in Mexico: CSR Tools for Sustainable Development or Just a Legal Process to Fulfill?

Armando García Chiang
Sociology Department, Universidad Autónoma Metropolitana, Iztapalapa Academic Unit, Mexico

agch@xanum.uam.mx

Abstract: For more than six decades, the Mexican oil industry has been dominated by the state-owned enterprise Petróleos Mexicanos (Pemex). However, the 2014 energy reform signified a significant shift, allowing foreign entities to enter the petroleum sector for the first time in more than half a century. This paper analyzes the evolution of Social Impact Assessments (SIA) and Environmental Impact Assessments (EIA) in this new context. It analyzes their effectiveness as instruments for Corporate Social Responsibility (CSR) and evaluates their potential contributions to sustainable development goals. Drawing on empirical research carried out by a team at the Universidad Autónoma Metropolitana (UAM), this study underscores the necessity of these assessments in the prevailing regulatory environment.

Keywords: Social impact, Environmental impact, Oil industry, Mexico, Corporate social responsibility, Sustainable development

1. Introduction

The Mexican energy sector has undergone major transformations since the enactment of the 2014 energy reform, which aimed to liberalize the market and enhance investment in the oil and gas industries. Historically, Petróleos Mexicanos (Pemex) operated as a monopoly, restricting foreign participation in the sector. The introduction of new contractual frameworks, including "Integral Contracts for Exploration and Production," necessitated the development of rigorous SIA and EIA frameworks that comply with international standards. This paper thoroughly analyzes the consequences of these assessments for sustainable development, particularly in the context of CSR initiatives by private enterprises.

The oil industry in Mexico has long been regarded as a keystone of national economic development. For decades, Pemex was the sole entity responsible for the exploration, production, and distribution of hydrocarbons. This monopoly not only shaped the economy but also influenced social dynamics in communities reliant on oil revenues.

The 2014 energy reform signified a pivotal moment, permitting foreign companies to enter the market and engage in various phases of the petroleum industry. This shift raised significant questions about the social and environmental responsibilities of these new operators, necessitating robust SIA and EIA processes.

Pemex was established in 1938 and has served as an essential component of Mexico's economic framework. Historically, it functioned not only as a source of revenue but also as an important employer and a key player in national development. However, maintaining a monopoly caused challenges, particularly amid technical progress and global market forces.

The energy reform sought to handle these issues by promoting competition and drawing foreign investment. While this liberalization sought to increase efficiency and boost production, it also brought complexities in regulatory compliance, notably regarding social and environmental impacts. The emergence of new market participants necessitated compliance with international standards, thereby accentuating the need for comprehensive assessments.

2. Methodology

This study uses a qualitative research design, using case studies to analyze how Social Impact Assessments (SIA) and Environmental Impact Assessments (EIA) have evolved and to measure their effectiveness in the Mexican oil sector. The research is grounded in a thorough review of existing literature, regulatory structures, and policy documents that emerged following the 2014 energy reform. This approach helps explain how changes in laws have influenced corporate requirements and local community expectations in a constantly evolving market. To ensure the analysis reflects real-life situations rather than theoretical ideas, this study draws on several key publications that provide a comprehensive methodological model for SIAs and EIAs in the oil industry.

Notably, previous research points out the role of social impact assessments as key tools for local development in the Mexican oil sector (García Chiang, 2018) and draws attention to the importance of social baseline studies to understand community contexts (García Chiang, 2023). Additionally, this study is based on a series of empirical investigations conducted by the Universidad Autónoma Metropolitana (UAM), including various social and environmental impact assessments in the energy sector. These studies provide a solid methodological framework and key evidence that supports the analysis of the effectiveness of SIA and EIA in the Mexican context.

Furthermore, the methodology includes an examination of the "Social Impact Manifestation for the Energy Sector" (MISSE) and other related regulatory tools, with a focus on integrating social and environmental assessments as advocated by international standards (Dauzacker, 2007; Frynas, 2009).

By combining academic insights alongside practical field observations, the study assesses the gap between legal compliance and genuine Corporate Social Responsibility (CSR) practices in the industry. Collectively, these studies provide the empirical foundation and analytical depth necessary to critically examine the disconnect between regulatory compliance and genuine commitment to sustainable development.

The methodology aims to provide a balanced view of the industry's current state, highlighting not only administrative obstacles but also opportunities for companies to go beyond straightforward compliance and contribute to meaningful, lasting local development through CSR initiatives that meet community needs.

3. The Role of Social Impact Assessments (SIA)

Social Impact Assessments have emerged as crucial instruments for evaluating the potential effects of oil projects on local communities. With the introduction of foreign companies, the demand for structured SIA processes has intensified. The SIA framework mandates that operators conduct comprehensive social baseline studies, which serve as a foundation for identifying and managing social risks associated with their activities. The SIA process includes several stages, including scoping, data collection, impact analysis, and reporting. Each phase is designed to engage stakeholders and incorporate their perspectives, ensuring that the assessments are mutually comprehensive and reflective of community needs. The emphasis on stakeholder engagement is critical, as it promotes trust and transparency.

Social Impact Assessments (SIA) and Environmental Impact Assessments (EIA) are integral to the frameworks of Corporate Social Responsibility (CSR) and governance, serving as central tools that go beyond mere compliance mechanisms. Theories of CSR highlight the importance of companies taking responsibility for their social and environmental impacts, which aligns well with the objectives of SIA and EIA. These assessments not only evaluate the potential negative consequences of projects on local communities and ecosystems but also identify opportunities to make positive contributions to sustainable development. By systematically incorporating stakeholder perspectives and addressing economic and social issues, SIAs and EIAs promote a more integrated approach to CSR, encouraging companies to harmonize their operations with wider societal goals.

Moreover, SIAs and EIAs have to function not only as legal requirements but also as proactive tools that can make notable contributions to sustainable development. By going beyond mere compliance, these assessments enable companies to recognize and address potential negative impacts on communities and ecosystems before projects are implemented. This foresight enables organizations to modify their operations to local needs and environmental considerations, eventually fostering a culture of responsibility and long-term sustainability.

"Social Impact Assessments (SIA) and Environmental Impact Assessments (EIA) play a crucial role in facilitating stakeholder engagement, which is essential for effective decision-making. By allowing communities to actively participate in these processes, SIAs and EIAs empower local populations, ensuring their voices are heard and their concerns are addressed.

This engagement fosters trust and leads to more equitable outcomes. In addition, long-term engagement with local communities is vital for companies to build partnerships based on mutual respect and understanding. This shift in mindset encourages companies to view local communities as stakeholders rather than mere beneficiaries, enabling them to gain valuable insights into local dynamics, cultural contexts, and socio-economic challenges. Such insights can inform the design and implementation of Corporate Social Responsibility (CSR) initiatives that are tailored to meet the specific needs of the community."

By integrating social and environmental dimensions into their strategic planning, companies can create value not only for themselves but also for the communities they impact, thus reinforcing their commitment to sustainable development and enhancing their overall corporate social responsibility (CSR) initiatives.

In addition, the governance literature underscores the necessity for transparency and accountability in corporate practices, which are essential for fostering trust between companies and the communities they affect. SIAs and EIAs facilitate this transparency by requiring companies to disclose their impact assessments and engage with local stakeholders throughout the evaluation process.

This engagement not only enhances the legitimacy of the assessments but also empowers communities to voice their concerns, ensuring that their needs are considered in decision-making. By integrating social and environmental considerations into their core strategies, companies can transform their CSR initiatives into meaningful actions that contribute to the Sustainable Development Goals (SDGs).

Thus, SIAs and EIAs emerge as crucial instruments in bridging the gap between corporate practices and sustainable development, helping organizations navigate the complexities of modern governance while fulfilling their social responsibilities.

While the regulatory framework mandates the completion of SIAs, the effectiveness of CSR initiatives in promoting local development remains a contentious issue. Traditional CSR practices often prioritize short-term philanthropic efforts, such as community donations or infrastructure improvements, without adequately addressing the underlying socio-economic challenges faced by affected communities. A more integrated approach is necessary to align CSR initiatives with sustainable development goals.

4. The Evolution of Impact Assessments

Environmental Impact Assessments have similarly evolved from basic studies identifying contaminated areas to comprehensive evaluations that adhere to international standards.

The regulatory requirements established by the Agency for Safety, Energy, and Environment (ASEA) necessitate a shift toward more rigorous EIA practices, ensuring that environmental considerations are integral to project planning. The EIA process encompasses several key elements, including baseline environmental conditions, impact predictions, mitigation measures, and monitoring plans. By incorporating these elements, EIAs provide a holistic view of the potential environmental consequences of proposed projects.

This comprehensive perspective is essential for informed decision-making that balances economic development with environmental sustainability. One of the challenges identified is the disconnect between SIAs and EIAs. Best practices suggest that social, economic, and environmental impacts are interconnected; however, current Mexican regulations often treat these assessments as separate entities. A more integrated approach, as advocated by international standards, would involve simultaneous evaluations that consider the complex interplay between social and environmental factors. Several case studies illustrate the benefits of integrating SIAs and EIAs.

For example, projects that assess both social and environmental impacts concurrently have yielded comprehensive insights, leading to improved decision-making. These integrated assessments facilitate the identification of potential conflicts and synergies between social and environmental objectives.

The regulatory landscape in Mexico is evolving, with an increasing emphasis on integrating social and environmental assessments. Policymakers are recognizing the value of comprehensive evaluations in promoting sustainable development, and efforts are underway to harmonize regulatory frameworks to support this integration.

Recently, the Social Impact Manifestation for the Energy Sector (MISSE, according to its Spanish acronym) was introduced as a new regulatory instrument in Mexico. This manifestation aims to strengthen the evaluation of social impacts from energy projects, ensuring that local communities' concerns are adequately considered. The MISSE establishes a more structured and detailed framework for assessing social impacts. Some of its key features include:

Comprehensive Approach: The MISSE promotes a thorough analysis of the social, economic, and cultural impacts of projects, as well as their interrelation with environmental impacts.

Community Participation: A fundamental aspect of the MISSE is the requirement to engage local communities in the evaluation process. This includes conducting prior consultations and collecting data through participatory methods.

Transparency Requirements: The MISSE mandates that companies provide clear and accessible information on the potential impacts of their projects and the proposed measures to mitigate them. The establishment of the

MISSE represents a significant shift in how social impacts are assessed in the energy sector. Among the changes introduced are:

- Strengthening the Regulatory Framework: The MISSE reinforces the requirements for social evaluation, aligning them with international best practices and ensuring that companies fulfill their social responsibilities.
- Increased Corporate Social Responsibility: With the implementation of the MISSE, companies are more obligated to demonstrate how their projects will contribute to the sustainable development of affected communities.
- Focus on Long-Term Outcomes: The MISSE encourages an approach that goes beyond mere regulatory compliance, incentivizing companies to consider the long-term impact of their operations on local communities.

The establishment of the MISSE represents a significant shift in how social impacts are assessed in the energy sector. This paper interrogates whether SIA and EIA serve as genuine CSR tools or merely as legal compliance measures. To enhance the theoretical contribution, a clearer conceptual framework that links these assessments to the CSR and governance literature is introduced. This would provide a more analytical depth to the discussion of their roles in achieving sustainable development.

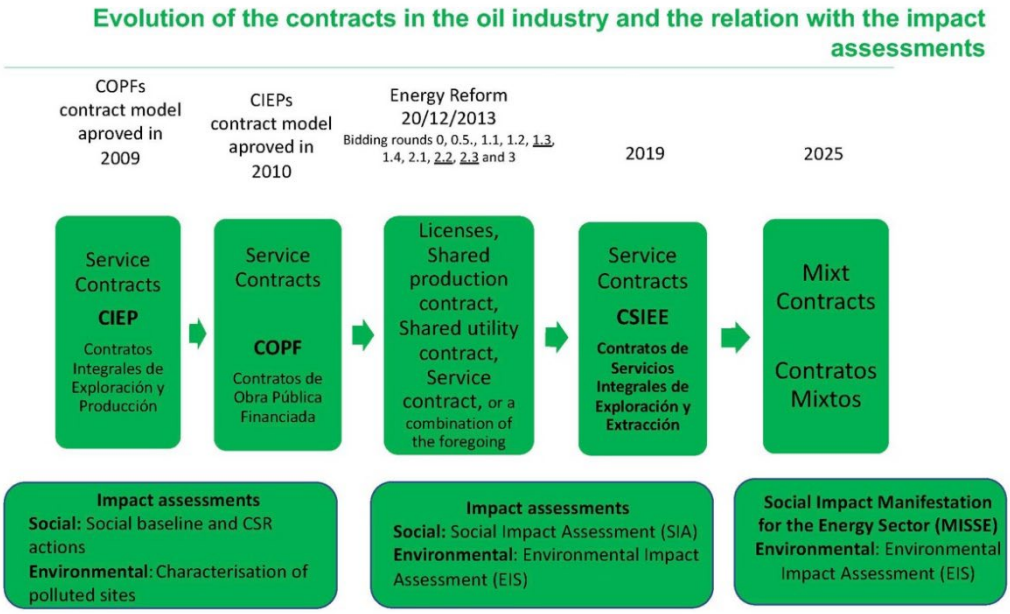


Table 1: The Evolution of Oil Contracts and Impact Studies

5. Challenges and Opportunities

Despite advancements in Social Impact Assessment (SIA) and Environmental Impact Assessment (EIA) frameworks, several challenges remain that threaten the effectiveness and implementation of these assessments in Mexico. The cancellation of new rounds of oil contract tenders by the government during the term of President Andres Manuel Lopez Obrador raised concerns about the future of these assessments and their role in promoting sustainable development. This situation highlighted the precarious balance between economic interests, regulatory compliance, and social responsibility.

The cancellation of oil contract tenders created uncertainty for both investors and local communities. Without new contracts, the anticipated influx of foreign investment and technological expertise may be stymied, potentially leading to stagnation in the oil sector. This uncertainty can discourage companies from engaging in SIAs and EIAs, as they may perceive these assessments as unnecessary bureaucratic hurdles in a volatile market.

Moreover, frequent changes in government policy can lead to confusion regarding regulatory requirements. For instance, companies may struggle to keep up with evolving regulations related to environmental protection and social responsibility. This inconsistency can result in inadequate assessments that fail to capture the true potential impacts of oil projects on local communities and ecosystems. Therefore, a stable and transparent

regulatory framework is essential to foster investor confidence and ensure that SIAs and EIAs are conducted effectively.

Private companies have the potential to play a significant role in local development through their Corporate Social Responsibility (CSR) initiatives. However, the mere implementation of social responsibility actions does not guarantee positive outcomes for local communities. Effective CSR requires a commitment to long-term engagement, transparency, and collaboration with local stakeholders.

Historically, many companies have approached CSR as a checklist of obligations, focusing on short-term philanthropic endeavors such as community donations or infrastructure improvements. While these initiatives can provide immediate benefits, they often fail to address the root causes of socio-economic challenges faced by affected communities. For CSR to be truly effective, it must be integrated into companies' core business strategies, aligning their operations with the needs and aspirations of local communities.

Long-term engagement with local communities is crucial for fostering trust and ensuring that CSR initiatives are genuinely beneficial. Companies must move beyond transactional relationships and seek to build partnerships based on mutual respect and understanding. This requires a shift in mindset, where companies view local communities as stakeholders rather than mere beneficiaries.

Engaging with communities over the long term allows companies to gain valuable insights into local dynamics, cultural contexts, and socio-economic challenges. This information can inform the design and implementation of CSR initiatives tailored to the community's specific needs. Additionally, ongoing engagement can help companies identify potential conflicts early, allowing for proactive measures to address concerns before they escalate.

Transparency and accountability are fundamental components of effective CSR. Companies must be open about their operations, the potential impacts of their projects, and the measures they are taking to mitigate those impacts. This transparency fosters trust between companies and local communities, as stakeholders are more likely to support projects when they are informed about the potential benefits and risks.

More thoroughly, accountability mechanisms must be in place to ensure that companies adhere to their commitments. This can include regular reporting on CSR initiatives, independent audits of social and environmental performance, and mechanisms for community feedback. By establishing a culture of accountability, companies can demonstrate their commitment to social responsibility and build stronger relationships with the communities they operate in.

Looking ahead, the future of SIAs, EIAs, and the MISSE in Mexico will depend on several factors, including regulatory reforms, stakeholder engagement, and companies' ability to adopt best practices. There is a pressing need for ongoing research and dialogue among industry stakeholders, government agencies, and local communities to ensure that the assessments evolve in response to emerging challenges and opportunities.

One significant opportunity lies in fostering collaboration among various stakeholders. Multi-stakeholder platforms can facilitate dialogue and cooperation between oil companies, government representatives, local communities, and civil society organizations. These platforms can serve as forums for sharing best practices, discussing challenges, and jointly developing solutions to complex social and environmental issues. Furthermore, collaboration can enhance the effectiveness of SIAs and EIAs.

By involving a diverse range of stakeholders in the assessment process, companies can gain a more comprehensive understanding of potential impacts and identify innovative solutions that benefit both their operations and the affected communities. Collaborative approaches can also help to build consensus around project design and implementation, reducing the likelihood of conflict and resistance.

Another opportunity to enhance the effectiveness of SIAs and EIAs lies in integrating technology and innovation. Advances in data analytics, Geographic Information Systems (GIS), and remote sensing can provide valuable insights into environmental conditions, social dynamics, and potential impacts. By leveraging these technologies, companies can develop more robust assessments that inform decision-making and align with sustainability goals.

More useful technology can facilitate greater transparency in the assessment process. Online platforms can be utilized to disseminate information, engage stakeholders, and gather feedback. This fosters a more inclusive approach to decision-making, allowing local communities to participate actively in the assessment process and voice their concerns.

6. Conclusion

The evolution of Social Impact Assessments (SIA) and Environmental Impact Assessments (EIA), along with the introduction of the Social Impact Manifestation for the Energy Sector (MISSE) in Mexico, reflects the changing landscape of the oil industry and underscores the growing recognition of Corporate Social Responsibility (CSR) as a vital component in promoting sustainable development. This paper has highlighted several key findings: the necessity of robust assessment frameworks, the importance of stakeholder engagement, and the need for transparency and accountability in corporate practices.

Despite the progress made, significant challenges remain, including regulatory inconsistencies and the need for greater integration of social and environmental considerations into business strategies. However, integrating these assessments into the regulatory framework presents an invaluable opportunity for private companies to contribute meaningfully to local development.

By aligning CSR initiatives with the Sustainable Development Goals (SDGs), the oil industry in Mexico can create a lasting positive impact that extends beyond mere compliance, fostering resilience and growth in affected communities.

Moving forward, it is crucial for future research to explore the practical implementation of the MISSE and its effectiveness in various contexts within the energy sector. Additionally, companies should prioritize long-term engagement with local communities to ensure that their CSR initiatives are genuinely beneficial and tailored to meet community needs.

By adopting a more holistic approach to CSR and embracing innovative practices, the oil industry can not only address current socio-economic challenges but also pave the way for a more sustainable and equitable future in Mexico.

Ethics Declaration: The research conducted for this paper did not require ethical clearance as it primarily involved a review of existing literature and publicly available data regarding Social Impact Assessments (SIA) and Environmental Impact Assessments (EIA) in Mexico. No human subjects or sensitive data were involved in the research process.

AI Declaration: This paper was created with the assistance of AI tools. The extent of AI involvement included structuring the content and ensuring coherence throughout the document. While AI tools were utilized to enhance the writing process, all interpretations, analyses, and conclusions presented in the paper are the sole responsibility of the author.

References

Dauzacker, N. (2007). Environmental impact: Recognition and management accounting (Doctoral thesis). National University of Rosario, Argentina.

Flores, R. (2009). Impacto de la responsabilidad social empresarial en los negocios vinculados a petróleo y gas (Unpublished master's thesis). Universidad Tecnológica Nacional, Buenos Aires.

Fry, M., Murphy, T., Hilburn, A., and Chiang, A.G. (2020). What Happened to Mexico's Burgos Shale? Mission Foods Texas-Mexico Center Research, 11. Available at: https://scholar.smu.edu/texasmexico-research/11

Frynas, J. (2009). Beyond corporate social responsibility: Oil multinationals and social challenges. Cambridge: Cambridge University Press.

García-Chiang, A. (2012). El diagnóstico social en la industria petrolera. Propuesta metodológica para elaborar un Plan de Responsabilidad Social. Equilibrio Económico, Revista de Economía, Política y Sociedad, 8(34), pp. 203.

García-Chiang, A. (2018). Corporate social responsibility in the Mexican oil industry: Social impact assessment as a tool for local development. International Journal of Corporate Social Responsibility, 3(1). Available at: https://doi.org/10.1186/s40991-018-0038-z

García Chiang, A. (2021). The Government's Role in the Mexican CSR Development. Human Rights, Energy Reform and Social & Environmental Assessments. International Journal of Corporate Social Responsibility. Current Global Practices of Corporate Social Responsibility - In the Era of Sustainable Development Goals, 1(1), pp. 651-665. Available at: https://doi.org/10.1186/S40

García Chiang, A. (2023). The oil industry in Mexico, corporate social responsibility and local development: Social clauses in the oil contracts. Real alternative for development? International Journal of Social Sciences Research, 3(18).

Murphy, T., Fry, M., Hilburn, A., and García Chiang, A. (2022). Contracts and access to Mexico's natural gas resources: The text is not legible on the ground. Geoforum, 134, pp. 59-70.

Universidad Autónoma Metropolitana. (2026). Estudio de seguimiento de las condiciones ambientales para el Área Contractual Amatitlán.

Universidad Autónoma Metropolitana. (2025). Estudio de evaluación de Impacto Social para el Área Contractual Pitepec, UAM, México.
Universidad Autónoma Metropolitana. (2024). Estudio de evaluación de Impacto Social para el Área Contractual Cuitláhuac, UAM, México.
Universidad Autónoma Metropolitana. (2024). Estudio de las condiciones ambientales para el Área Contractual Cuitláhuac, UAM, México.
Universidad Autónoma Metropolitana. (2023). Estudio de las condiciones ambientales del Área Contractual Tierra Blanca, UAM, México.
Universidad Autónoma Metropolitana. (2023). Estudio de las condiciones ambientales para el Área Contractual San Andrés, UAM, México.
Universidad Autónoma Metropolitana. (2021). Actualización línea base social área contractual Arenque 2021, UAM, México.
Universidad Autónoma Metropolitana. (2018). Evaluación de Impacto Social (EVIS) para el Área Contractual Santuario, UAM, México.

Ethical Leadership in Healthcare Management: The Case of Greek Hospitals

Konstantinos Giannakos[1], Dimitrios Belias[1,2], Athanasios Koustelios[1] and Nikolaos Tsigilis[3,4]

[1]Department of Business Administration, University of Thessaly, Larissa, Geopolis, Greece

[2]Department Public Management, Panteion University, Kallithea, Greece

[3]Department of Journalism and Mass Media Communication, Aristotle University of Thessaloniki, Thessaloniki

[4]College of Education, United Arab Emirates University, UAE

kgiannakos@uth.gr
dbelias@uth.gr
akoustel@uth.gr
ntsigilis@jour.auth.gr

Abstract: Ethical Leadership constitutes a pivotal factor for the effective functioning of an organization's workforce, as it is directly linked with the notions of justice, honesty, respect, and social cohesion. The significance of the ethical leadership derives from the fact that they provide guidance to a leader on how to treat the decisions and values of others with respect, how to make decisions that are beneficial rather than detrimental to human well-being, how to aim for justice as the focal point of their decision-making, how to remain sensitive toward the attitudes and feelings of others without exercising manipulation, and how to actively pursue the common good. Within healthcare organizations, where decisions carry direct implications for patient welfare and staff conduct, ethical leadership assumes particular importance. This empirical study examines the psychometric properties of the "Ethical Leadership at Work Questionnaire" (ELW; Kalshoven et al., 2011) within the Greek healthcare sector. This study was conducted on the personnel of public hospitals. To examine the construct's validity, the researchers used Confirmatory Factor Analysis (CFA), and Cronbach's alpha coefficients were used to assess internal consistency. The results confirmed that the ELW has a strong factor structure and high reliability across the questionnaire's parts, consistent with findings from previous work using the same scale and supporting the scale's usefulness in Greek healthcare.

Keywords: Ethical leadership, ELW, Healthcare management, Greek public hospitals

1. Introduction

Ethical leadership is one of the key concepts that has emerged in recent years in the field of organizational behavior. The reason behind this is that this concept is closely related to a fair workplace environment, honesty, respect, and employees getting along with each other (South Eastern Oklahoma State University, 2012). By their ethical standards, leaders can lead their subordinates towards making decisions that respect others' values and autonomy; fairness takes priority, they are responsive to the emotional needs of the members of the team without resorting to manipulation, and they are always striving for the common good instead of their narrow self-interest (Bass & Steidlmeier, 1999). These features make great sense when viewed in the context of health care organizations, where leaders' choices directly affect patients' health, employees' behavior, and, more generally, the quality of care. The level of ethical commitment, healthcare being one such demanding field, together with the increasing number of findings that connect ethical leadership with less burnout, less resignation, and improved overall performance of the organization, is the reason why this concept has been attracting so much research for the past decade (Eisenbeiss & van Knippenberg, 2015).

Although it seems to be expanding, most of the literature demonstrating ethical leadership in healthcare is geographically unbalanced. The following review shows that studies are predominantly published by researchers from Northern Europe, East Asia, and the Middle East. In contrast, Southern European countries, and Greece specifically, have barely produced any publications or are significantly lagging behind. In addition, there have been no efforts to develop in Greek a validated psychometric instrument that will be suitable for measuring ethical leadership in healthcare organizations in a psychometrically valid and reliable way. This lack is also mirrored in the fact that despite having been widely adopted around the world, the questionnaire Ethical Leadership at Work (ELW) of Kalshoven, Den Hartog, and De Hoogh (2011) has no translated and back-translated Greek version that has been psychometrically validated.

The aim of the present study is therefore to examine and validate the psychometric properties of the Ethical Leadership at Work (ELW) questionnaire among personnel employed in Greek public hospitals. In pursuit of this aim, the study sets out the following objectives: (a) to verify the seven-dimensional factorial structure of the ELW questionnaire within the Greek healthcare sector using Confirmatory Factor Analysis; (b) to assess the

internal consistency and reliability of the overall scale and its constituent dimensions using Cronbach's Alpha and McDonald's Omega coefficients; and (c) to examine the descriptive characteristics of, and the interrelationships among, the ELW dimensions within this population. In doing so, the study seeks to contribute a validated measurement tool to the Greek healthcare management literature and to address the broader geographic gap identified in the international ethical leadership research.

2. Defining Ethical Leadership

The concept of Ethical Leadership is one of the most important factors for the smooth functioning of an organization, as it is directly linked to the concepts of justice, honesty, respect, and social cohesion (South Eastern Oklahoma State University, 2012).

The theoretical significance of these constructs lies in the ethical framework they provide for authentic leadership practice. Authentic leadership as defined by Bass and Steidlmeier (1999) refers to a leader who respects other's decisions and values, encourages followers to engage in activities that are beneficial to them without causing harm, makes the ideals of fairness and justice central components of her/his decision making and continues to have a relationship which she/he is sharing the emotions with them without manipulating them on a personal level and makes sure that collective good is pursued even in sacrificing self interests.

One of the most popular definitions regarding the concept of ethics is the following: "*Ethics is directly related to knowing and doing what is right*" (Ethical Leadership Guide, 2016). Various scholars have focused on the factors that help identify the concept of ethical leadership (Monahan, 2012). One of the earliest scholars of ethical leadership, Greenlead (2002) emphasized that "*the primary responsibility of an ethical leader is to serve their followers*". Similarly, Heifetz (2006) suggests that a key priority for ethical leaders is to address conflicts among members and guide them in the right direction. Furthermore, Cumbo (2009) argues that ethical leadership must focus on the leader. More specifically, "*a leader is considered ethical when his or her inner virtues guide him or her in the decision-making process. Followers benefit from a leader who lives a virtuous life. The ethical leader influences others through his or her own virtues*".

Cumbo (2009) argues that these virtues are strengthened when a leader demonstrates imagination, compassion, empathy, and discretion. Serving one's followers is the primary responsibility of ethical leaders. In conclusion, Plinio (2009) argues that ethical leadership is related to three forms of leadership. The first form of leadership associated with ethical leadership is transformational leadership. "*Transformational leadership is related to ethical leadership, as it enhances the level of ethical aspirations (and, by extension, human behavior) of both the leader and the follower. In this way, it has a transformative effect on both*" (Burns, 1978). The second form of leadership relates to servant leadership. This emphasizes the need to serve one's followers and to be dedicated to their moral development. Finally, the third form of ethical leadership relates to authentic leadership, since, according to Plinio (2009), the essence of ethics lies in being true and authentic to oneself.

3. The Concept Of Ethical Leadership in the Healthcare Sector

This research explores the area of ethical leadership in a medical context. This topic has witnessed massive growth in recent years. The issue at stake has shifted from a small point in a broader study to a stand-alone, thoroughly investigated subject. It is easy to understand why there is a focus on ethics, given how ethically challenging health care jobs are, together with growing evidence that leaders who behave morally are those who can bring about tangible results, e.g., lower levels of burnout and staff turnover, patient safety, and organizational performance.

Many studies on this topic have largely built on Brown, Treviño, and Harrison's (2005) Social Learning Conceptual Framework of Ethical Leadership, which was later developed into a multidimensional, validated measurement tool such as the Ethical Leadership at Work Questionnaire (Kalshoven, Den Hartog, & De Hoogh, 2011). A significant meta-analytic review paper published in the Journal of Business Ethics by Bedi, Alpaslan, and Green (2016) examined the inverse relationship between ethical leaders and counterproductive behaviours, as well as the link between leadership and employee health, across a diverse range of industries. This review established a correlation between the construct and the mentioned effects. The healthcare samples provided further support for the general pattern of results. Eisenbeiss & van Knippenberg (2015), in the Journal of Organizational Behavior, further expanded the research by showing that followers' mindfulness and morally driven feelings are both predictors of leadership effectiveness resulting from ethical leadership, which serves as a mechanism.

Empirical research exploring the effects of ethical leadership in relation to nurse burnout, job satisfaction, and psychological well-being has been published in various forms. Franczukowska et al. (2021), who surveyed 458 healthcare employees in Austrian hospitals, nursing homes, and rehabilitation centers, found that ethical leadership had a significant positive association with job satisfaction and affective commitment, and a significant negative association with burnout. Frustration tolerance and emotional stability were identified as partial moderation variables in this model. Kaffashpoor and Sadeghian (2020) examined a private hospital sample from Mashhad in Iran and concluded that a person's well-being is mainly affected by ethical leaders. The mediator for this relationship turns out to be the worker's satisfaction. Si et al. (2023) recently found that through the leader's attunement to the environment, ethical leadership manifests the leadership quality unique to it in influencing the nurses' well-being - offering a more granular account of the pathway than earlier studies had provided.

Ethical leadership was repeatedly identified as one of the strong protective factors that could be most effective against nurse turnover. In Cho et al. (2022), a systematic review and meta-analysis of 21 studies published in the Journal of Korean Academy of Nursing, ethical leadership was found to have the highest effect size ($r = -0.34$) among all leadership styles considered in reducing hospital nurses' turnover intention, followed by transformational, authentic, and transactional leadership. Similarly Lambert et al. (2024), after administering questionnaires to 216 nurses in the US, uncovered that ethical leadership not only accounted for the nurses' intention to remain in work but also reduced the negative effects that workplace bullying could have on burnout indicating that ethical leadership is not just a direct retention factor, but may also be a protective moderation in stressful work settings.

There is another parallel research thread that links ethical leadership to employees' discretionary behaviours that support organizational functioning. Almanbahi et al. (2025), in a structural equation modelling study of 300 employees in a Saudi Arabian hospital, concluded that ethical leadership had a major direct impact on organizational excellence and, through an indirect route mediated by organizational citizenship behaviours, where integrity and employee orientation were the most predictive dimensions. Zhang et al. (2023) similarly observed that ethical leadership could moderate the negative consequences of workplace ostracism on the citizenship behaviour of Chinese healthcare employees, whereas from the point of view of public service employees working in Nigeria, Tabiu (2023) identified that ethical leadership's effect on citizenship behaviour could be greatly reinforced when it was coupled with supportive HR practices. The work of Aloustani et al. (2020), published in BMC Nursing as an earlier but widely cited descriptive correlational study, revealed the basic relationship between ethical leadership, ethical climate, and nurses' experienced citizenship behaviour. This research paper served as the basis for most subsequent papers by Chinese and Middle Eastern scholars on ethical leadership.

Not only is trust an outcome of ethical leadership, but it functions as a channel through which such leadership exerts its effects. Varga et al. (2023), through a systematic review, identified not only ethical leadership as the third most mentioned characteristic of trustworthy hospital management in the empirical literature but also benevolence and manager availability as such characteristics. Moreover, Gonçalves and Curado (2023), in a survey of 321 Portuguese healthcare professionals, revealed that ethical leadership has a positive impact not only on workplace happiness but also on strengthening professional social networks, both of which are expected outcomes that ultimately determine the quality of patient care.

Also, a recently emerged stream in the paper literature has focused primarily on the relationship between ethical leadership and the moral agency of nurses. Wang, Zhou, Wen & Gou (2024) conducted a survey of 837 nurses across five hospitals in Sichuan Province, China. Their work demonstrates that the positive effects of ethical leadership on nurses' moral courage are mediated by psychological empowerment. Moreover, Meng & Guo (2025), building on this work, found that moral sensitivity partially mediated the relationship between ethical leadership and the moral courage of head nurses. Another study by Zhou & Zhang (2021) also reported that during pandemic nursing work conditions, ethically led nurses achieved better subordinate outcomes even under crisis conditions, such results are also supported by Musbahi et al. (2022), whose survey of the NHS clinical leaders before and after the start of the pandemic showed that pandemic had significantly changed the way ethical leadership principles were both implemented and judged.

A number of recent literature reviews have attempted to integrate this diverse but growing body of evidence on ethical leadership. Singh & Vashist (2025), who examined 22 publications (Scopus, Emerald, Web of Science) concluded that a training program aimed at ethical leadership has consistently shown to bring organizational sustainability. Nevertheless, they added that the field is primarily characterized by cross-

sectional data, a nurse focus, and confined to a few national contexts. Sere et al. (2025), in contrast, asserted that empirical research in the area of ethical leadership is mostly conducted from the followers' perspective, and they recommend more investigations from the leaders' point of view that are in the spirit of ethical leadership research. Ozdoba et al. (2022), in their review of hospital ethical climate research, showed that ethical climate is strongly associated with job satisfaction, while also emphasizing the lack of longitudinal and comparative designs at the national and international levels.

Putting all these studies into a single view, one gets the sense that ethical leadership is based on strong findings yet remains a geographically and methodologically fragmented arena. There is solid evidence that ethical leadership is linked to burnout, turnover, and citizenship behaviour among nurses, mainly in Northern Europe, East Asia, and the Middle East. In contrast, in Southern Europe, physician populations and longitudinal approaches have been studied only weakly, leaving a substantial gap.

4. Methodology

4.1 Participants and Procedure

This sample of this study consisted of 268 employees who worked in Greek hospitals. More specifically, 186 women and 82 men participated. The majority of the participated aged more than 50 years old (41%, 109 participants), as well as from 41 to 50 years old (33%, 88 participants). As far as the educational level is concerned, most participants have a bachelor’s degree (46%, 123 participants) or a master’s degree (38%, 101 participants). Finally, the majority of the sample worked as nursery personnel (128 employees, 48%) or medical doctors (83 employees, 31%).

A questionnaire was given to the participants. All the questionnaires were completed anonymously by the employees of Greek hospitals with the presence of the researchers who did not interfere in the completion of the questionnaire. The participation on this research was voluntary and all participants were informed that they could be notified if they wanted to learn about the outcome of the research. The sampling method was the convenience sampling method.

4.2 Measurement Tool

The measurement tool that was used in this specific research was Ethical Leadership at work questionnaire (ELW) by Kalshoven et al. (2011). This tool consists of 38 items which have organized in seven dimensions so as to measure the level of organization’s Ethical Leadership: people orientation, fairness, power sharing, concern for sustainability, ethical guidance, role clarification, integrity. More specifically:

- People orientation: It denotes genuine care and respect for followers' well-being, expressed through attentiveness to their needs and personal concerns.
- Fairness: It refers to the extent to which the leader makes transparent, objective, and balanced decisions and treats subordinates equitably in interpersonal dealings.
- Power sharing: It concerns the degree to which the leader allows subordinates a voice in decision-making and incorporates their input, thereby fostering autonomy and self-efficacy.
- Concern for sustainability: It reflects the leader's attentiveness to the broader environmental and societal consequences of organizational decisions.
- Ethical guidance: It captures the leader's active communication of ethical standards, including the clarification of integrity-related codes of conduct and the reinforcement of ethical behaviour through recognition or sanction.
- Role clarification: It refers to the leader's clarity in communicating expectations, responsibilities, and performance priorities to followers.
- Integrity: It reflects the consistency between the leader's stated values and actual conduct, encompassing promise-keeping and behavioural predictability.

These items are measured through a 5-point Likert scale (from 1 = Totally Disagree to 5 = Totally Agree).

4.3 Data Analysis

The aim of this section was to evaluate and validate the psychometric properties of the Ethical Leadership at Work (ELW) questionnaire within the study sample. More thoroughly, the factorial structure, internal consistency, and reliability of the tool were examined via Confirmatory Factor Analysis (CFA), Cronbach's Alpha Coefficient, and McDonald's Omega Coefficient. Descriptive statistics (mean and standard deviation) were calculated for all items and subscales to characterize the central tendency and dispersion of responses, while

Spearman's rho correlation coefficient was used to examine the associations between the ELW dimensions, given the ordinal nature of the Likert-type data and the non-normal distribution of several subscales.

Regarding CFA, model fit was assessed using multiple complementary indices: the ratio of chi-square to degrees of freedom (χ^2/df), the Comparative Fit Index (CFI), the Tucker–Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). A χ^2/df ratio below 3 was considered indicative of good fit, while values below 5 were deemed acceptable. CFI and TLI values equal to or greater than 0.90 were considered acceptable, with values above 0.95 indicating good fit. RMSEA values below 0.08 were considered acceptable, with values below 0.06 indicating good fit, while SRMR values below 0.08 were considered indicative of adequate fit. All standardized factor loadings were required to exceed 0.40 to be retained as meaningful indicators of their respective latent constructs.

Regarding internal consistency, both Cronbach's Alpha and McDonald's Omega coefficients were calculated for each ELW dimension and for the overall scale, as Omega was included to address the known limitations of Alpha under conditions of non-tau-equivalence, providing a more robust estimate of reliability for multidimensional instruments. Values equal to or greater than 0.70 were considered acceptable for both coefficients, with values above 0.80 regarded as indicating good reliability. Finally, Spearman's rho was interpreted according to conventional benchmarks, with coefficients of 0.10–0.29 indicating a weak relationship, 0.30–0.49 a moderate relationship, and values of 0.50 or above indicating a strong relationship between variables.

5. Results

5.1 Validation the Factorial Structure of ELW via Confirmatory Factory Analysis

To verify the factorial structure of the ELW Questionnaire in the Greek Healthcare Section, the statistical method of Confirmatory Factor Analysis (CFA) was implemented. According to Table 1, CFA fit measures indicate that the model does not demonstrate good fit. All indicators do not value in the acceptable rate.

Table 1: Fit measures for CFA – ELW Questionnaire (1st attempt)

χ^2	df	p	CFI	TLI	SRMR	RMSEA	RMSEA 90% CI	
							Lower	Upper
5080	644	<.001	0.766	0.745	0.0817	0.130	0.127	0.134

Cutoff criteria: CFI ≥ 0.90 (acceptable), ≥0.95 (good fit); TLI ≥ 0.90 (acceptable), ≥0.95 (good fit); RMSEA ≤ 0.08 (acceptable), ≤0.06 (good fit); SRMR ≤ 0.08 (good fit).

According to Table 2, some items present unacceptable and very low loading. More specifically, Item 8 of the Fairness dimension demonstrate low loading (λ=0.484), Items 15 and 18 of power sharing demonstrate low loadings (λ=-0.364 and λ=-0.144 accordingly). Hence, these items were deleted and the researchers executed the statistical method of CFA one more time.

Table 2: Factor Loadings of ELW Questionnaire Items (1st attempt)

Factors	Items	Loadings	p value
People orientation	Item 1	0.887	<.001
	Item 2	0.881	<.001
	Item 3	0.912	<.001
	Item 4	0.928	<.001
	Item 5	0.948	<.001
	Item 6	0.919	<.001
	Item 7	0.934	<.001
Fairness	Item 8	0.484	<.001
	Item 9	0.541	<.001
	Item 10	0.701	<.001
	Item 11	0.938	<.001

Factors	Items	Loadings	p value
	Item 12	0.911	<.001
	Item 13	0.825	<.001
Power sharing	Item 14	0.502	<.001
	Item 15	-0.364	<.001
	Item 16	0.705	<.001
	Item 17	0.695	<.001
	Item 18	-0.144	<.001
	Item 19	0.862	<.001
Concern sustainability	Item 20	0.762	<.001
	Item 21	0.969	<.001
	Item 22	0.752	<.001
Ethical guidance	Item 23	0.845	<.001
	Item 24	0.866	<.001
	Item 25	0.853	<.001
	Item 26	0.842	<.001
	Item 27	0.825	<.001
	Item 28	0.807	<.001
	Item 29	0.798	<.001
Role clarification	Item 30	0.851	<.001
	Item 31	0.880	<.001
	Item 32	0.917	<.001
	Item 33	0.888	<.001
	Item 34	0.823	<.001
Integrity	Item 35	0.955	<.001
	Item 36	0.959	<.001
	Item 37	0.964	<.001
	Item 38	0.717	<.001

The re-specified CFA model yielded improved and more satisfactory fit statistics. Although certain fit indices fell marginally outside conventional acceptability values, the authors decided to retain the model on the basis of the consistently high values obtained for average variance extracted (AVE), factor loadings, Cronbach's alpha, and McDonald's omega, which collectively provided strong evidence of construct validity and reliability. The results of CFA measures are described in Tables 3 and 4.

Table 3: Fit measures for CFA – ELW Questionnaire (Final model)

χ^2	df	p	CFI	TLI	SRMR	RMSEA	RMSEA 90% CI	
							Lower	Upper
1409	539	<.001	0.801	0.781	0.0619	0.128	0.124	0.131

Cut-off criteria: CFI ≥ 0.90 (acceptable), ≥0.95 (good fit); TLI ≥ 0.90 (acceptable), ≥0.95 (good fit); RMSEA ≤ 0.08 (acceptable), ≤0.06 (good fit); SRMR ≤ 0.08 (good fit).

Table 4: Factor Loadings of ELW Questionnaire Items (Final model)

Factors	Items	Loadings	AVE	p value
People orientation	Item 1	0.887		<.001
	Item 2	0.881	0.839	<.001
	Item 3	0.912		<.001

Factors	Items	Loadings	AVE	p value
	Item 4	0.928		<.001
	Item 5	0.947		<.001
	Item 6	0.919		<.001
	Item 7	0.935		<.001
Fairness	Item 9	0.522		<.001
	Item 10	0.692		<.001
	Item 11	0.941	0.630	<.001
	Item 12	0.912		<.001
	Item 13	0.825		<.001
Power sharing	Item 14	0.528		<.001
	Item 16	0.696	0.501	<.001
	Item 17	0.688		<.001
	Item 19	0.875		<.001
Concern sustainability	Item 20	0.762		<.001
	Item 21	0.970	0.695	<.001
	Item 22	0.751		<.001
Ethical guidance	Item 23	0.846		<.001
	Item 24	0.866		<.001
	Item 25	0.853		<.001
	Item 26	0.842	0.696	<.001
	Item 27	0.825		<.001
	Item 28	0.807		<.001
	Item 29	0.798		<.001
Role clarification	Item 30	0.851		<.001
	Item 31	0.879		<.001
	Item 32	0.917	0.761	<.001
	Item 33	0.889		<.001
	Item 34	0.824		<.001
Integrity	Item 35	0.955		<.001
	Item 36	0.959	0.819	<.001
	Item 37	0.964		<.001
	Item 38	0.717		<.001

Cutoff criteria: AVE ≥ 0.5 (acceptable); Factor loadings ≥ 0.40 (acceptable).

5.2 Descriptive Statistics, Internal Consistency and Correlations

Table 5 describes the descriptive statistics, the Cronbach's alpha coefficient, and the McDonald's omega coefficient of the dimensions of Ethical Leadership. Based on the five-point rating system, the total score on ethical leadership averaged 3.452 (SD = 0.682). This meant that respondents, on the whole, held a reasonably favourable view of ethical leadership among other factors. The seven dimensions of ethical leadership were assessed, with the dimension of integrity getting the highest mean score (M = 3.868, SD = 1.159), which was followed by ethical guidance (M = 3.825, SD = 0.987) and role clarification (M = 3.750, SD = 0.989) very closely. This meant that, overall, respondents perceived their leaders more positively in terms of maintaining consistent behaviour, upholding moral standards, and being clear about what was required and expected. In contrast, "fairness" scored the lowest mean score across all the dimensions of M = 2.183 (SD = 1.101), which was below the middle of the scale. This reflects a less favourable overall perception of leaders' fairness in their decision-making and treatment of others.

Regarding the internal consistency of the ethical leadership and its dimensions, both statistical measures (Cronbach's alpha and Mc Donald's omega) showed high consistency. More specifically, Cronbach's alpha (α) ranges from 0.802 to 0.973. Similar results are described in McDonald's omega (ω) (all values range from 0.806 to 0.974).

Table 5: Descriptive Statistics, Internal Consistency and Correlations of Ethical Leadership and its dimensions

Factors/Dimensions	Number of items	Mean (M)	Standard Deviation (SD)	Cronbach's α	Mc Donald's ω
Ethical Leadership	35	3.452	0.682	0.933	0.960
People orientation	7	3.502	1.289	0.973	0.974
Fairness	5	2.183	1.101	0.890	0.894
Power sharing	4	3.371	0.885	0.802	0.806
Concern sustainability	3	3.640	1.071	0.860	0.870
Ethical guidance	7	3.825	0.987	0.939	0.941
Role clarification	5	3.750	0.989	0.940	0.940
Integrity	4	3.868	1.159	0.928	0.947

Ethical leadership as well as its dimensions were examined using the Kolmogorov-Smirnov test for normality. Kolmogorov-Smirnov test showed that all variables do not follow the normal distribution ($p<0.01$). Hence, to examine the correlations among these dimensions, Spearman coefficient was applied (Table 6). More thoroughly, with the exception of fairness, all dimensions showed strong, statistically significant, positive correlations with the overall construct, ranging from moderate-to-strong (power sharing, r = 0.658) to very strong (ethical guidance, r = 0.919; role clarification, r = 0.908; people orientation, r = 0.867). On the contrary, fairness correlated negatively with every other dimension and with the overall scale (r = -0.605), a pattern that diverges from both the original ELW validation study and the wider ethical leadership literature, and which warrants explicit discussion as a notable finding of the present study.

Table 6: Correlations of Ethical Leadership and its dimensions

Variables	People Orientation	Fairness	Power Sharing	Concern Sustainability	Ethical Guidance	Role Clarification	Integrity	Ethical Leadership
People Orientation	1.000	-0.741*	0.572*	0.682*	0.758*	0.712*	0.707*	0.867*
Fairness		1.000	-0.453*	-0.505*	-0.635*	-0.565*	-0.675*	-0.605*
Power Sharing			1.000	0.465*	0.547*	0.612*	0.399*	0.658*
Concern Sustainability				1.000	0.743*	0.681*	0.638*	0.809*
Ethical Guidance					1.000	0.830*	0.771*	0.919*
Role Clarification						1.000	0.769*	0.908*
Integrity							1.000	0.823*
Ethical Leadership								1.000

6. Results

The present study examined the psychometric properties of the Ethical Leadership at Work (ELW) questionnaire among personnel of Greek public hospitals. Following item deletion and model re-specification, the ELW demonstrated high internal consistency across all seven dimensions (Cronbach's α = 0.802–0.973; McDonald's ω = 0.806–0.974), supporting the reliability of the Greek adaptation. However, CFA fit indices remained below conventional acceptability thresholds even in the final model (CFI = 0.801, TLI = 0.781, RMSEA = 0.128), indicating that the seven-factor structure was only partially confirmed within this sample, despite strong factor loadings and AVE values. A particularly notable result was the consistent negative correlation between fairness and all remaining dimensions, diverging sharply from both the original validation study and

the wider international literature. This pattern warrants further investigation, as it may reflect a distinct cultural interpretation of fairness within Greek public hospital hierarchies, item-translation effects, or sector-specific dynamics not previously captured in the ELW literature. Future research should employ larger, multi-hospital samples, test alternative or modified fairness items, and consider qualitative approaches to clarify how fairness is understood among Greek healthcare professionals. These findings offer a preliminary but important contribution to validating ethical leadership measurement in an underexplored Southern European healthcare context.

7. Practical and Policy Implications

Beyond its psychometric contribution, this study approaches findings that are directly relevant to the governance of hospitals in Greece. Two results are translated into actionable recommendations: the consistently high scores and strong reliability of integrity, ethical guidance, and role clarification, and the markedly low, negatively correlated fairness dimension. These results point to concrete adjustments in how leadership is developed and how managerial staff is selected within the hospital system, though the results remain preliminary given the modest CFA fit indices reported above.

With respect to leadership training, curricula for hospital leaders should give explicit attention to distributive and procedural justice, given that fairness was both the lowest-scoring dimension and the only one to correlate negatively with the rest of the construct: transparent criteria for shift allocation, workload distribution, promotion, and disciplinary action, together with structured opportunities for staff to contest decisions they view as inequitable, would directly target this weakness. At the same time, training should build on the strengths already evident in integrity, ethical guidance, and role clarification rather than treating ethical leadership development as a uniform, one-size-fits-all programme, and the validated Greek ELW can itself be embedded into continuous-professional-development cycles as a pre- and post-training diagnostic, allowing hospitals and the Ministry of Health to target resources at the specific dimensions where a given department scores weakest. Because the negative fairness pattern may reflect structural features of Greek hospital hierarchies rather than individual leader behaviour alone, such training should also be paired with organisational-level reviews of decision-making transparency.

Ethical Statement: This study was conducted in accordance with the ethical principles for research involving human participants. Participation was voluntary, and all respondents completed the questionnaire anonymously. Participants were informed in advance about the purpose of the study and were offered the option to be notified of the research outcomes upon completion. No personally identifiable information was collected, and data were analysed and reported only in aggregate form.

Declaration on the Use of AI: During the preparation of this manuscript, the authors used Grammarly (AI-assisted writing tool) for grammar and language proofreading.

References

Almanbahi, F. S., Awad, A., Ghonim, A., Alabsy, N. M., & Shemais, M. (2025). Ethical leadership and organizational excellence: The mediating role of citizenship behavior in healthcare. *Humanities and Social Sciences Communications*, 12, Article 1392. https://doi.org/10.1057/s41599-025-05743-6

Aloustani S, Atashzadeh-Shoorideh F, Zagheri-Tafreshi M, Nasiri M, Barkhordari-Sharifabad M, Skerrett V. (2020). Association between ethical leadership, ethical climate and organizational citizenship behavior from nurses' perspective: a descriptive correlational study. BMC Nursing, 4 (19), 15. https://doi.org/10.1186/s12912-020-0408-4

Bass, BM. and Steidlmeier, P. (1999) Ethics, character, and authentic transformational leadership behavior. The Leadership Quarterly 10(2): 181–217. DOI: 10.1016/S1048-9843(99)00016-8

Bedi, A., Alpaslan, C. M., & Green, S. (2016). A Meta-Analytic Review of Ethical Leadership Outcomes and Moderators. *Journal of Business Ethics*, 139, 517-536. https://doi.org/10.1007/s10551-015-2625-1

Burns, J. (1978). *Leadership*. New York: HarperCollins.

Cho, Y., Jeong, S. H., Kim, H. S., & Kim, Y. M. (2022). Effects of leadership styles of nursing managers on turnover intention of hospital nurses: A systematic review and meta-analysis. *Journal of Korean Academy of Nursing*, 52(5), 479–498. https://doi.org/10.4040/jkan.22039

Cumbo, L. J. (2009). Ethical leadership: The quest for character, civility, and community. *Current Reviews for Academic Libraries*, 47(4), 726-726.

Eisenbeiss, S. A., & van Knippenberg, D. (2015). On ethical leadership impact: The role of follower mindfulness and moral emotions. *Journal of Organizational Behavior*, 36(2), 182–195. https://doi.org/10.1002/job.1968

Ethical Leadership Guide. (2016). *Definition, qualities, pros and cons, examples, 11 August 2016*. Available at: https://www.cleverism.com/ethical-leadership-guide-definition-qualitiespros-cons-examples/ (accessed 16 July 2018).

Franczukowska, A. A., Krczal, E., Knapp, C., & Baumgartner, M. (2021). Examining ethical leadership in health care organizations and its impacts on employee work attitudes: An empirical analysis from Austria. *Leadership in Health Services*, 34(2), 229–247. https://doi.org/10.1108/LHS-06-2020-0034

Gonçalves, T., & Curado, C. (2023). The role of ethical leadership and social networks in the promotion of workplace happiness and quality of care: A cross-sectional study. *International Journal of Health Planning and Management*, 38(5), 1330–1344. https://doi.org/10.1002/hpm.3663

Greenleaf, R. K. (2002). Essentials of servant leadership. In *L. C. Spears & M. Lawrence, M. (Eds). Focus on leadership: Servant-leadership for the 21st century (3rd ed.)* (pp. 19-25). Hoboken, NJ: Wiley.

Heifetz, R. A. (2006). Anchoring leadership in the work of adaptive progress. In *F. Hesselbein & M. Goldsmith (Eds). The leader of the future: Visions, strategies, and the new era*, pp. 78-80. San Francisco, CA: Leader to Leader Institute, Josey Bass.

Kaffashpoor, A., & Sadeghian, S. (2020). The effect of ethical leadership on subjective wellbeing, given the moderator job satisfaction (a case study of private hospitals in Mashhad). *BMC Nursing*, 19, Article 111. https://doi.org/10.1186/s12912-020-00496-w

Kalshoven, K., Hartog, D.N.D., De Hoogh, A.H.B. (2011). Ethical leadership at work questionnaire (ELW): Development and validation of a multidimensional measure. *The Leadership Quarterly*, 22, 51-69. Doi: 10.1016/j.leaqua.2010.12.007.

Lambert, J. R., Brown, L. W., Lambert, T. A., & Nava, C. T. (2024). The effect of ethical leadership on nurse bullying, burnout, and turnover intentions. *Journal of Nursing Management*, 2024, Article 3397854. https://doi.org/10.1155/2024/3397854

Meng, J., & Guo, X. (2025). The relationship between ethical leadership, moral sensitivity, and moral courage among head nurses. *BMC Nursing*, 24, Article 538. https://doi.org/10.1186/s12912-025-03170-1

Monahan, K. (2012). A review of the literature concerning ethical leadership in organizations. Emerging Leadership Journeys, 1 (5).

Musbahi, A., et al. (2022). Pandemic priorities: The impact of the COVID-19 pandemic on ethical leadership in the healthcare profession. *Leadership in Health Services*, 35(4), 481–497. https://doi.org/10.1108/LHS-02-2022-0011

Ozdoba, P., Dziurka, M., Pilewska-Kozak, A., & Dobrowolska, B. (2022). Hospital ethical climate and job satisfaction among nurses: A scoping review. *International Journal of Environmental Research and Public Health*, 19(8), Article 4554. https://doi.org/10.3390/ijerph19084554

Plinio, A. J., Young, Judith, M., & Lavery, L. M. (2010). The state of ethics in our society: A clear call for action. *International Journal of Disclosure & Governance*, 7(3), 172- 197.

Seere, A., Suhonen, R., & Wiisak, J. (2025). Prerequisites for ethical leadership in health and social care: Integrative review. *Nursing Ethics*. Advance online publication. https://doi.org/10.1177/09697330251366593

Si, X., Xue, H., Song, X., Liu, X., & Zhang, F. (2023). The relationship between ethical leadership and nurse well-being: The mediating role of workplace mindfulness. *Journal of Advanced Nursing*, 79(10), 4008–4021. https://doi.org/10.1111/jan.15719

Singh, A., & Vashist, H. (2025). Ethical leadership in health-care organizations – A scoping review. *Leadership in Health Services*, 38(1), 136–152. https://doi.org/10.1108/LHS-04-2024-0035

South Eastern Oklahoma State University. (2012). *The principles of ethical leadership*. Available at: http://homepages.se.edu/cvonbergen/files/2012/12/Principles-of-Ethical-Leadership1.pdf (accessed 20 April 2024).

Tabiu, A. (2023). Impact of ethical leadership, HRM practices, and ethical climate on organizational citizenship behaviors in Nigerian local governments. *International Journal of Public Leadership*, 19, 229–245. DOI: 10.1108/IJPL-06-2022-0038

Varga, A. I., Spehar, I., Veggeland, F., & Skirbekk, H. (2023). Trustworthy management in hospital settings: A systematic review. *BMC Health Services Research*, 23, Article 662. https://doi.org/10.1186/s12913-023-09610-5

Wang, X., Zhou, L., Wen, X., & Gou, L. (2024). Exploring the relationship between ethical leadership and nurses' moral courage in China: The mediating effect of psychological empowerment. *Journal of Nursing Management*, Article 6664191. https://doi.org/10.1155/2024/6664191

Zhang, L., Liu, Z., & Li, X. (2023). Impact of coworker ostracism on organizational citizenship behavior through employee self-identity: The moderating role of ethical leadership. *Psychology Research and Behavior Management*, 16, 833–848. https://doi.org/10.2147/PRBM.S415036

Zhou, J., & Zhang, K. (2021). Effect of ethical nurse leaders on subordinates during pandemics. *Nursing Ethics*, 29(2), 304–316. https://doi.org/10.1177/09697330211030673

Impact of Emotional Intelligence and Leadership on Employee Outcomes in Greek SMEs

Styliani Gkiosi and Anastasia Adali
Department of Economics and Business, School of Economics, Business and Computer Sciences, Neapolis University Pafos, Cyprus

s.giosi@nup.ac.cy
a.adali@nup.ac.cy

Abstract: Small and medium-sized enterprises (SMEs) make up the majority of businesses in Greece and contribute significantly to its economy. The ever-changing business environment puts pressure on employees and leaders to respond to its demands. Employees and leaders influence each other through the expression of their emotions. The main objectives of this study focused on identifying the components of employees' emotional intelligence (EI), leaders' leadership style, and the effect of leaders' EI on employees' outcomes such as team collaboration, effective communication, job satisfaction, commitment, performance and resilience. The effect of demographic characteristics on EI was examined, too. A quantitative survey was distributed across Greek SMEs with a sample of 102 participants. The findings indicated that self-awareness and self-regulation outweighed the other components of employees' EI, while the participative and humanistic leadership styles prevailed over the visionary style of leaders. Leaders' EI had a positive effect on the examined employees' outcomes. Almost all demographic characteristics had no statistically significant effect on EI. The empirical data from the research in this specific geographic and organizational context will enrich the literature review, while the study of the impact of EI and leadership on employees' outcomes will help raise awareness of this relationship and facilitate future investment in its enhancement.

Keywords: Emotional intelligence, Leadership, Employee outcomes, Greek SMEs, Demographic characteristics

1. Introduction

Small and medium enterprises (SMEs) account for about 90 percent of businesses and more than 50 percent of employment worldwide, and characterized as key engines of job creation and economic growth in developing countries (International Finance Corporation, 2024).

Furthermore, the conventional productivity–focused approach to which the contribution of SMEs is linked to low productivity and limited innovative activities puts aside their contribution to local development, domestically generated added value, regional growth, job creation and knowledge generation. Additionally, the explanation of low productivity as an intrinsic feature of SMEs neglects the main drivers of low productivity among which are the unequal access to crucial and strategic resources like finance, technological adoption, digital transformation, national policies, skills empowerment and human capital. Apart from this, human resources (HR) and organizational behavior (OB) in the SMEs environment have a strong influence on low productivity. To this vein, leadership and employees' outcomes could be estimated as crucial drivers to SMEs productivity.

In Greece, even though sometimes SMEs are approached either as a growth obstacle or a structural weakness of its economy, nobody can deny their significant contribution to the entrepreneurship ecosystem (Angelakis & Manioudis, 2025). According to the 2026 SME Country Fact Sheet – Greece, Greek SMEs continued their recovery, with real value added growing by 7.6% and employment by 2.8% in 2025

(https://webgate.ec.europa.eu/circabc-ewpp/d/d/workspace/SpacesStore/c971b655-62e1-4190-9daa-ea9961fe3e56/download)

According to European Commission, SMEs category is made up of enterprises which employ fewer than 250 persons with an annual turnover not exceeding EUR 50 million (medium-sized), enterprises with fewer than 50 persons and turnover not exceeding EUR 10 million (small), and enterprises with fewer than 10 persons and turnover not exceeding EUR 2 million (micro)

(https://single-market-economy.ec.europa.eu/smes/sme-fundamentals/sme-definition_en)

In Greece, at the 2025 data the share of micro enterprises is 94.7%, of small 4.7% and of medium 0.5% out of the total of SMEs 99.9%, while 0.1% is for large enterprises. (https://webgate.ec.europa.eu/circabc-ewpp/d/d/workspace/SpacesStore/c971b655-62e1-4190-9daa-ea9961fe3e56/download)

A targeted review of recent research on Greek SMEs made evident a tendency on themes such as sustainability, leadership, digitalization and organizational culture change for enhancing SMEs competiveness.

The investigation of some indicative recent research examples concerns: The impact of business communication on sustainability (Kalogiannidis, Syndoukas, Papaevangelou, & Chatzitheodoridis, 2023); the adoption of SDGs strategies in Greek Hospitality SMEs (Agkoli, 2024); the impact of technology on Greek businesses based on key performance indicators-KPIs (Challoumi, Eriotis, & Vasiliou, 2026); the resilience of SME leadership in its navigation of different economic crises, and the perception and rationalization of Greek SMEs concerning their membership in the European Union and its advantages (Choy, Jamail, Rodrigo, Tantisunthorn, & Vijayakumara, 2025); the need for change in organizational culture to unlock its growth potential through transformation, adaptation, and innovation (Boufounou & Argyrou, 2022).

It seems that there is limited empirical research on Greek SMEs concerning EI, leadership and their impact on employees' outcomes, even though, there is a considerable amount of research on the same themes in different countries' context (e.g. Alwali & Alwali, 2022; Lee, Yeh, Yu, & Lin, 2023). Thus, there is ground for going on and the present research pursuits to fill this gap.

In the contemporary era, as leaders have to address the complexity and uncertainty of many challenges in their business environment, their EI plays a vital role while it considers the main concern of all the organizations. There is a wide range of definitions, constructs, and models in the field of EI (McCleskey, 2014) as well as criticisms about their meaning and validation. Mainly, the concept of EI is based on three premises: Emotions play an important role in daily life; people may vary in their ability to perceive, understand, use, and manage emotions; these variances may affect individual adaptation in a variety of different contexts, including the workplace" (Cherniss, 2015). In the workplace, EI increases occupational performance, leadership and organizational productivity (Bharwaney et al, 2011).

Leadership is one of the most complex and multidimensional concepts in the field of management and OB (Yukl, 2013) while the common component to nearly all its classifications is that leadership is an influence process that assists groups of individuals toward goal attainment" (Northouse, 2013). In every organization leaders and followers are part of the leadership process, interact, influence each other, and share emotions, either positive or negative. The identification of the employees' EI is of great value to the employees themselves, and to the leaders the leadership style of whom has an influence on the employees' outcomes.

2. Emotional Intelligence and Leadership

Salovey & Mayer (1990) view emotions as organized responses that typically arise in response to an internal or external event which has a positive or negative meaning for the individual. They define EI as "the subset of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (Salovey & Mayer, 1990). In a revised definition, EI is "the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional meanings, and to reflectively regulate emotions so as to promote both better emotion and thought" (Mayer & Salovey, 1997). According to the EI literature the term emotional refers to moods and emotions (George, 2000).

Feelings (both emotions and moods) play an important role in leadership and influence its effectiveness (George, 2000). Since EI has been suggested to possess stronger and greater reliability in predicting leadership effectiveness, more interest in research and development of models toward establishing the relationship between EI and leadership effectiveness emerged (Tan, Voon, & Ngui, 2022). These namely were "the Ability Model of EI" (Mayer et al, 2016), "the Mixed Model of EI" (Bar-On 1997), and "the Competence Model of EI" (Goleman, 1995), which consists of five components, self-awareness, self-regulation, intrinsic motivation, empathy and social skills.

Leadership has been defined in so many different ways that they are almost as numerous as the people who have attempted to define it (Stogdill, 1974). The four key components of leadership, across the wide range of definitions, are as follows: leadership is a process; leadership involves influence; leadership occurs in groups; leadership involves common goals" (Northouse, 2013).

Leadership as a process focuses on influencing others to understand and agree on what needs to be done and how it should be done, as well as on facilitating individual and collective efforts to achieve common goals (Yukl, 2012; 2013). Furthermore, it puts emphasis on the reciprocal influence between leaders and followers, whether positive or negative (Yukl, 2012). It is also accepted that leadership is an emotionally charged process, in which a leader can manage their own emotions and demonstrate empathy towards others and, as a result, be more effective in the workplace (Antonakis, Ashkanasy, & Dasborough, 2009).

A leader's leadership style influences employees' performance and the trust they place in their leader, which in itself is a key factor affecting job performance (Lee, Yeh, Yu, & Lin, 2023). Participatory leadership is a democratic form of leadership that involves subordinates in decision-making and the management of the organisation, with the aim of effectively strengthening employees' sense of ownership (Wang, Hou, & Li, 2022). Visionary leadership is characterised by the ability to formulate and instil a clear vision, which gives meaning and purpose to an organisation; this vision is developed and aligned with that of the employees, whilst empowering them to take action (Karwan, Hariri, & Ridwan, 2021). Humanistic leadership is leadership based on the concept of humanism, which, primarily and in the broadest sense, emphasises the dignity and intrinsic value of people in the pursuit of the common good (Gotsis & Grimani, 2024).

To study the impact of EI and leadership on employee performance in Greek SMEs, this study adopted a process-based approach to leadership. The participative, visionary and humanistic leadership styles were selected due to their people-centered orientation. Based on these assumptions, the hypotheses set out below were formulated.

3. Methodology

3.1 Methodological Approach

A quantitative approach was selected as "it can describe trends, attitudes, and opinions or examine associations among variables and helps researchers to answers different kind of questions such as descriptive, answers about relationships of variables including the predictive ones over time" (Creswell & Creswell, 2018). The main objectives of this study were to investigate employees' EI (self-awareness, self-regulation, intrinsic motivation, empathy, social skills), their leaders' leadership styles (participative, visionary, humanistic) and the impact of leaders' EI on employees' outcomes (teamwork, effective communication, job satisfaction, commitment, performance and resilience). Furthermore, the relationship between and the influence of demographic characteristics on EI were investigated.

The research was conducted on the basis of the following questions:

1. What are the components of the employees' EI?
2. Do participative, visionary and humanistic leadership styles form part of their leaders' leadership styles?
3. Does leader's EI influence employees' outcomes?
4. How do demographic characteristics influence EI?

The main hypotheses were:

H1: The components of employees' EI are related to the five components of Goleman's model.

H2: The leader's leadership style is related to participative, visionary and humanistic leadership styles.

H3: The leader's EI has a positive influence on employees' outcomes (team collaboration, effective communication, job satisfaction, commitment, job performance, resilience).

H4: There is no difference in the impact of demographic characteristics on EI.

The hypotheses H3 and H4 have relative sub-hypotheses, too.

3.2 Sample, Data Collection and Analysis

The sample consisted of 102 employees at Greek SMEs across various sectors. The exclusion criteria for the study were employment with non-governmental organizations (NGOs) and with public-sector enterprises and organizations.

Data collection took place from December 2025 to February 2026 in SMEs operating in different sectors. The questionnaire was distributed via an online survey (using Google Forms, where a digital version of the questionnaire had been prepared) and in accordance with the principles of research ethics. All responses were anonymous, participation was voluntary, and the consent of all participants was required.

The questionnaire used for data collection consisted of four sections. The first section covered demographic details, whilst the remaining three sections covered the research topics, comprising 40 questions. The demographic details of the respondents were: gender, age group, work experience, job position and the enterprise's sector of activity. The second section comprised 12 questions relating to EI (e.g. 'I can easily recognise my own emotions', 'I adjust my behaviour based on other people's emotions', 'I can easily recognise

my colleagues' emotions'). The third section consisted of 12 questions relating to leadership style (e.g. 'My leader encourages participation in decision-making, emphasising teamwork and transparency' (participative style); 'My leader envisions the future and promotes innovation' (visionary style); My leader promotes the professional development of employees (humanistic style). The fourth section comprised 16 questions regarding the leader's EI and its impact on employees' outcomes (e.g. My leader's EI improves my performance; My leader's EI contributes positively to my job satisfaction; My leader's EI improves teamwork). A five-point Likert scale (ranging from 'strongly disagree' to 'strongly agree') was used for all dimensions, except for demographic data. The independent variables were the employees' EI, leadership style and the leader's EI, whilst the dependent variables were the employees' outcomes (team collaboration, effective communication, job satisfaction, commitment, job performance, resilience).

The data were analysed using SPSS. Descriptive and inferential statistics were used to summarise the data, answer the research questions and test the hypotheses.

4. Results and Findings

The reliability and internal consistency of the items were examined using Cronbach's alpha. Cronbach's alpha was 0.974, which demonstrates an exceptionally high level of reliability (values > 0.9 are considered excellent), confirms the internal consistency of the items and the accuracy of the measurements in capturing the intended constructs. The reliability analysis for each item showed that the adjusted correlations between items and the total score ranged from 0.215 to 0.882, indicating a satisfactory to very high contribution of the individual items to the overall scale. More specifically, Cronbach's alpha was: 0.975 for items 2, 3, 5, 6, 9 and 12; 0.974 for items 1, 4, 7, 8, 19 and 11; 0.973 for items 13–25 and 28–40; and 0.972 for items 26 and 27. Analysis of the item-total correlations showed that all items contribute positively to the reliability of the scale, whilst the removal of any single item does not substantially improve the reliability index.

The total number of questionnaire respondents was 102 employees of Greek SMEs. The demographic characteristics of the research sample were: the percent of 61.8% consisted of females and 38.2.4% of males. The age distribution of the participants shows a strong concentration in the middle and upper productive ages. Specifically, the largest group of respondents belongs to the age range of 35-45 years (49%). This means that the majority of participants are employees within their mature career phase with a distinct professional identity. Then follows the age group of 45-55 (23.5%), 25-35 (21.6), more than 55 (15%) and 18-25 (4.9%). Most respondents had 20 and more years of work experience (34.3%), from 16 to 20 years (25.5%), from 11 to 15 years (16.7%), from 6 to 10 years (10.8%0 and from 0 to 5 years (12.7%). Concerning the job position, the majority were employees (68.6%), low level managers (13.7) and mid-level executives (9.8%). Concerning the enterprise activity, service provision (60.8%), health services (20.8%) and product trade (18.6).

The total number of respondents was 102 employees of Greek SMEs. The demographic characteristics of the research sample were as follows: 61.8% were women and 38.2 %were men. The age distribution of the participants shows a strong concentration in the middle and upper working-age groups. Specifically, the largest group of respondents belongs to the 35–45 age groups (49%). This means that the majority of participants are employees who are at a mature stage in their careers and have a distinct professional identity. This is followed by the 45–55 age groups (23.5%), 25–35 years (21.6%), over 55 years (15%) and 18–25 years (4.9%). Most respondents had 20 or more years' work experience (34.3%), between 16 and 20 years (25.5%), between 11 and 15 years (16.7%), between 6 and 10 years (10.8%) and between 0 and 5 years (12.7%). Regarding job position, the majority were employees (68.6%), lower-level managers (13.7%) and middle-level managers (9.8%). In terms of enterprise activity, the sectors were service provision (60.8%), health services (20.8%) and trade in goods (18.6%).

With regard to the first question, employees' EI is characterised by the following components: self-awareness, self-regulation (self-control, mindfulness), intrinsic motivation, social sensitivity (empathy), social skills (communication, influence, teamwork). In conclusion, the participants demonstrated a high level of self-awareness (83.3 per cent) and self-regulation (70.6 per cent).

With regard to the second research question, the participants demonstrated elements of participatory, visionary and humanistic leadership styles. The participatory and humanistic styles predominated over the visionary style, with percentages of 56.9 per cent and 54.9 per cent, respectively.

With regard to the third research question, there was found to be a positive effect of the leader's EI on employees' outcomes (teamwork, effective communication, job satisfaction, commitment, performance and

resilience), with high percentages observed in teamwork, performance and communication (57%, 55% and 60%, respectively).

With regard to the fourth research question, namely the effect of demographic characteristics on EI, the results of the ANOVA showed that gender, age, work experience and sector of activity do not have a statistically significant effect on emotional intelligence. However, job position appears to have a small, albeit not entirely significant, effect on emotional intelligence ($\eta^2 = 0.087$). Further details regarding the effect of demographic characteristics on EI are presented in the tables below.

Table 1: Emotional intelligence and gender

Factor	Sum of Squares	df	Mean Square	F	p	η^2
Overall Model	4.73	1	4.73	3.16	0.079	
Gender	4.73	1	4.73	3.16	0.079	0.031
Residuals	149.79	100	1.50			

Table 2: Emotional intelligence and age group

Factor	Sum of Squares	df	Mean Square	F	p	η^2
Overall Model	5.52	4	1.38	0.899	0.468	
Age Group	5.52	4	1.38	0.899	0.468	0.036
Residuals	149.00	97	1.54			

Table 3: Emotional intelligence and work experience

Factor	Sum of Squares	df	Mean Square	F	p	η^2
Overall Model	2.85	4	0.712	0.456	0.768	
Work experience	2.85	4	0.712	0.456	0.768	0.018
Residuals	151.67	97	1.564			

Table 4: Emotional intelligence and job position

Factor	Sum of Squares	df	Mean Square	F	p	η^2
Overall Model	13.4	4	3.35	2.31	0.064	
Job position	13.4	4	3.35	2.31	0.064	0.087
Residuals	141.1	97	1.45			

Table 5: Emotional intelligence and enterprise sector activity

Factor	Sum of Squares	df	Mean Square	F	p	η^2
Overall Model	8.26	5	1.65	1.08	0.374	
Enterprise's sector activity	8.26	5	1.65	1.08	0.374	0.053
Residuals	146.26	96	1.52			

Where df =degrees of freedom, **η^2 =**the proportion of variance in a dependent variable explained by a predictor variable

The research hypotheses were all confirmed.

5. Limitations, Implications and Suggestions for Further Research

The sample size is one of the main limitations of this research study. Future studies with a larger and more representative sample could enhance the generalisability of the findings and enable the investigation of differences between sub-groups, such as different hierarchical levels, industry sectors or types of organisations. Another limitation was the use of convenience sampling rather than random sampling, which also prevents generalisations to other populations.

The findings of this study have certain implications for practice, society and research. An analysis of leaders' EI and its impact on employee performance could encourage managers to pay greater attention to it and organisations to invest in programmes to develop it. Managers in SMEs can choose the appropriate combination of leadership styles in order to foster high-quality social relationships linked to positive outcomes for employees. As organisations reflect the values and behaviours of the people who lead them and work for them (Grojean et al. 2004), organisations with leaders and employees who possess EI could attract other employees to work with them. Finally, compared with research conducted in different countries and cultural contexts (Shaari et al., 2023), this study provides empirical data within this specific geographical and organisational context, helping to bridge the research gap observed in the relevant literature.

Future research could further explore the relationship between leadership and certain other variables, by examining additional factors and analysing mediating or moderating factors, such as organisational culture, burnout, emotional flexibility, commitment, resilience and well-being. Combining qualitative research approaches could provide a more comprehensive understanding of the impact of EI and leadership on employees' outcomes. Furthermore, self-reports from senior executives could also prove useful in correlating the views of both sides, with a view to studying the convergence or divergence of opinions. Future research could broaden the theoretical framework by incorporating other leadership theories, such as authentic, ethical, empowering or servant leadership. A comparative examination of different leadership approaches could reveal which form of leadership is most effective in different organisational environments or working conditions within SMEs.

6. Discussion and Conclusions

SMEs are drivers of competition and key catalysts for job creation and economic growth in developing countries (International Finance Corporation, 2024). In Europe, 99% of businesses are SMEs, which provide jobs for more than 85 million European citizens and contribute to a sustainable and digital economy, which is central to Europe's competitiveness (https://single-market-economy.ec.europa.eu/smes_en).

In Greece, the majority of the economy consists of SMEs, and a prerequisite for their growth (as is the case for all SMEs across Europe) is access to critical resources, such as investment, finance, technology and national policies. In addition to these resources, productivity in SMEs depends on leadership, EI among both employees and managers, and their impact on employee performance, which is the main focus of this research study.

Some of the findings of this study are consistent with those of other research studies. One such study is that by Lee et al (2023), who examined the relationship between EI, leadership style and employee performance. Their results show that a leader's EI enhances both employees' trust and commitment, factors that are directly related to job performance. The importance of EI and work performance was highlighted in another study, which emphasised EI as a critical factor that significantly influences various aspects of work performance' (Mrisho & Mseti, 2024).

The role of EI in organisational leadership was examined by the researcher Iyer (2025). The findings revealed the following: emotional intelligence skills significantly enhance decision-making, promote employee engagement and improve team performance; EI has a positive influence on leadership and its effectiveness; leaders with EI are able to resolve conflicts and enhance productivity and stronger team collaboration.

Moreover, the findings of this study are consistent with research carried out in different professional and cultural contexts. A recent study in a different cultural context, conducted by Shaari et al (2023), found that the three dimensions of EI (social skills, empathy and motivation) are significantly associated with employee performance. Another study in the field of education showed that the EI of primary school teachers have a positive impact on their interactions with their team members and their professional performance (Lu & Chen, 2024). Although these studies concern different work environments, their conclusions reinforce the generalisability of the findings and suggest that the importance of EI, leadership and job performance is not limited to a single academic field or organisational context.

EI plays a significant role in work-related processes and organisational outcomes, such as leadership effectiveness and job performance (Cherniss, 2015). EI influences the performance of leaders and employees in today's rapidly evolving business landscape. There is no doubt that leaders and employees who possess EI will enable teams to thrive, be better prepared to cope with the pressures imposed by a changing work environment, and demonstrate resilience in dealing with uncertainty, stress and various ambiguous situations (Khan, 2023).

EI is linked to effective leadership, particularly when this is defined by five key elements, namely: setting collective goals and objectives; fostering a sense of appreciation; generating and sustaining enthusiasm, self-confidence, optimism, cooperation and trust; encouraging flexibility in decision-making and change; establishing and maintaining a meaningful identity for an organisation (George, 2000). Indeed, the role of EI in leadership effectiveness is indisputable and non-negotiable. Leaders and followers are, in a sense, interdependent, and a good understanding of their emotions on both sides is of great value, with people-centred leaders being effective and followers being productive, satisfied and committed.

Ethics Declaration: An ethical clearance was required. Approval of permission to conduct this research dated the 3rd of April 2025 was issued by the National Bioethics Committee of the country to which the AF belongs.

AI Declaration: No AI tools were used.

References

Agkoli , P. (2024) SDGs strategies in Greek hospitality SMEs: Overcoming barriers to sustainability implementations. HAPSc Policy Briefs Series, 132-138. doi:10.12681/hapscpbs.40819

Alwali, J., & Alwali, W. (2022) "The relationship between emotional intelligence, transformational leadership, and performance: a test of the mediating role of job satisfaction", Leadership & Organization Development Journal, Vol 43, No. 6, pp 928-952. doi:10.1108/LODJ-10-2021-0486

Angelakis, A., & Manioudis, M. (2025) "The historical evolution of small and medium sized Enterprises (SMEs) in Greece: The exploration of growth policies aiming to accelerate innovation based economic transformation and knowledge economy", Journal of the Knowledge Economy, Vol 16, pp 9603–9623. doi:10.1007/s13132-024-02300-5

Antonakis, J., Ashkanasy, N. M. & Dasborough, M. T. (2009) "Does leadership need emotional intelligence?", The Leadership Quarterly, Vol 20, No. 2, pp 247-261. doi: 10.1016/j.leaqua.2009.01.006

Ashkanasy, N. M. & Humphrey, R. H. (2011) A multi-level view of leadership and emotions: Leading with emotional labor. In: A. Bryman, et al, (Eds), Sage Handbook of Leadership, Sage, London, pp 363-377.

Bar-On, R. (1997) The emotional quotient inventory (EQ-i): A test of emotional intelligence, Multi-Health Systems, Toronto.

Bharwaney, G., Bar-On , R. & MacKinlay, A. (2011) EQ and the bottom line: Emotional Intelligence increases individual occupational performance, leadership and organisational productivity, Ei World Limited, Bedfordshire.

Boufounou, P., & Argyrou , M. (2022) "Changing the organizational culture to transform the economy: The case of Greece", Frontiersin Research Metrics and Analytics, Vol 7, No. 1050544, pp 1-14. doi:10.3389/frma.2022.1050544

Challoumi, C., Eriotis, N., & Vasiliou, D. (2026) "Insights from the Impact of technology on Greek businesses: Key Performance Indicators", International Journal of Basic and Applied Sciences, Vol 15, No.1, pp 90-109. doi:10.14419/wq9x3493

Choy, G., Jamail, A., Rodrigo, M., Tantisunthorn, V., & Vijayakumara, A. (2025) "Perceptions of the European Union among Greek SME leadership", LSE Laidlaw Scholars Journal, Vol 1, No. 1, pp 20-37.

Cherniss, C. (2015) "Emotional Intelligence: Toward clarification of a concept", Industrial and Organizational Psychology,Vol 3, No. 2, pp 110-126. doi: 10.1111/j.1754-9434.2010.01231.x

Creswell, J. W. & Creswell, D. J. (2018) Research design: Qualitative, quantitative, and mixed methods approaches, 5th ed, SAGE Publications, Inc, Thousand Oaks.

George, J. M. (2000) "Emotions and leadership: The role of emotional intelligence", Human Relations, Vol 53, No. 8, pp 1027–1055. doi: 10.1177/0018726700538001

Goleman, D. (1995) Emotional Intelligence, Bantam Dell, New York.

Gotsis, G., & Grimani, A. (2024) Humanistic leadership: A global roadmap toward inclusion. In J. Marques (Ed.), Encyclopedia of Diversity, Equity, Inclusion and Spirituality, Springer, pp 1-20). doi:10.1007/978-3-031-32257-0_14-1

Grojean, M. W., Resick, C. J., Dicksonandi, M. W. & Smith, D. B. (2004) "Leaders, values, and organizational climate: Examining leadership strategies for establishing an organizational climate regarding ethics", Journal of Business Ethics, Vol 55, No.3, pp 223-241. doi: 10.1007/s10551-004-1275-5

International Finance Corporation. (2024) IFC and Small and Medium Enterprises, World Bank. doi: 10.1596/42083

Iyer, S. S. (2025) "The role of emotional intelligence in organizational leadership", FAR Journal of Education and Sociology, Vol 2, No. 11, pp 13-23. doi: 10.13140/RG.2.2.15098.81608

Kalogiannidis, S., Syndoukas, D., Papaevangelou, O., & Chatzitheodoridis, F. (2023) "Relationship between business communication and business sustainability in times of uncertainty: A case of Greece", Internstional Journal of Professional Business Review, Vol 8, No.5, pp1-27. doi:10.26668/businessreview/2023.v8i5.1477

Karwan, D. H., Hariri, H., & Ridwan, R. (2021) Visionary leadership: What, why, and how. In R. Perdana, G. E. Putrawan, & S. Sunyono (Ed.), ICOPE 2020 Proceedings of the 2nd International Conference on Pregressive Education, EAI, Bandar Lampung, pp 431-452. doi:10.4108/eai.16-10-2020.2305217

Khan, D. (2023) "Emotional intelligence and its influence on workplace productivity and leadership: A contemporary review", NLDIMSR Innovision Journal of Management Research, Vol 7, No.2. doi:10.31794/NLDIMSR.7.2.2023.1-12

Lee, C.-C., Yeh, W.-C., Yu, Z., & Lin, X.-C. (2023) "The relationships between leader emotional intelligence, transformational leadership, and transactional leadership and job performance: A mediator model of trust", Heliyon, Vol 9, pp 1-20. doi:10.1016/j.heliyon.2023.e18007

Lu, T.-P., & Chen, J. (2024) "The effects of teacher's emotional intelligence on team-member exchange and job performance: the moderating role of teacher seniority", Current Psychology, Vol 43, pp 4323–4336. doi:10.1007/s12144-023-04593-2

Mayer, J. D., Caruso, D. R. & Salovey, P. (2016) "The ability model of emotional intelligence: Principles and updates" Emotion Review, Vol 8, No. 4, pp 290-300. doi: 10.1177/1754073916639667

Mayer, J. D. & Salovey, P. (1997) What is emotional intelligence. In P. Salovey & D. J. Sluyter, (Eds), Emotional development and emotional intelligence, Basic Books, New York, pp 3-31.

McCleskey, J. (2014) "Emotional intelligence and leadership: A review of the progress, controversy and criticism", International Journal of Organizational Analysis, Vol 22, No. 1, pp 76-93. doi: 10.1108/IJOA-03-2012-0568

Mortillaro, M. & Schlege, K. (2023) "Embracing the emotion in emotional intelligence measurement: Insights from emotion theory and research", Journal of Intelligence, Vol 11, No. 11. 210. doi: 10.3390/jintelligence11110210

Mrisho, D. H. & Mseti, S. (2024) "Emotional Intelligence: Concept, theoretical perspectives and its relevance on job performance", East African Journal of Interdisciplinary Studies, Vol 7, No. 1, pp 28-37. doi: 10.37284/eajis.7.1.1817

Northouse, P. G. (2013) Leadership: Theory and practice, Sage Publications, Thousand Oaks.

Salovey, P. & Mayer, D. J. (1990) "Emotional intelligence", Imagination, Cognition and Personality, Vol 9, No. 2, pp 185-211.

Shaari, A. et al. (2023) "Leader's Emotional Intelligence: How it affects employee's performance at workplace?" International Journal of Academic Research in Business and Social Sciences, Vol 13, No. 8, pp 584-594. doi: 10.6007/IJARBSS/v13-i8/17417

Stogdill, R. M. (1974) Handbook of leadership: A survey of the literature, Free Press, New York.

Tan, K. T., Voon, M. L., & Ngui, K. S. (2022) "Emotional intelligence and leadership effectiveness: A critical review for future research", Global Business and Management Research: An International Journal, Vol 14, No. 3s,pp 536-551.

Yukl, G. (2012) What is leadership. In: Leadership: Cases in leadership, 3rd ed, Sage, Thousand Oaks, pp 1-42.

Yukl, G. (2013) Leadership in organization, Pearson Education, Boston.

Wang, Q., Hou, H., & Li, Z. (2022) "Participative leadership: A literature review and prospects for future research", Frontiers in Psychology, Vol 13, pp 1-12. doi:10.3389/fpsyg.2022.924357

The Influence of Cultural Intelligence on Immigrant Employees' Job Satisfaction and Discrimination

Eva Gonçalves[1], Márcia Duarte[2] and Oscarina Conceição[2,3]
[1]Department of Management, Management School, Polytechnic University of Cávado and Ave, Barcelos, Portugal
[2]Department of Management, Management School, Polytechnic University of Cávado and Ave and Applied Management Research Unit (UNIAG), Barcelos, Portugal
[3]Iscte Instituto Universitário de Lisboa, DINÂMIA'CET, Lisbon, Portugal

a16765@alunos.ipca.pt
mduarte@ipca.pt
oconceicao@ipca.pt

Abstract: Immigration has become an increasingly significant global phenomenon, playing an important role in the Portuguese context. In this regard, it is essential to understand how immigrants adapt and integrate into the Portuguese labour market as well as to identify the variables that may positively or negatively influence this process. Problems and obstacles, such as discrimination, are observed for immigrants in the workplace. Discrimination is when people are treated differently because of their group membership. Cultural intelligence is a person's ability to understand, respect, and adapt to different cultures, adjusting to language, values, and behaviours. This competence allows one to recognise cultural diversity and use it strategically to interact effectively in culturally diverse environments (Ang et al., 2007; Takdir et al., 2020). Job satisfaction can be understood as an individual's perception of their professional experience, including team integration, job performance, and overall well-being in the work environment (Bal & Kokalan, 2022; Warr et al., 1979). The main objective of this study is to understand how cultural intelligence influences job satisfaction and discrimination according to immigrant employees'perceptions in the North of Portugal. A survey was conducted. To assess cultural intelligence, the Cultural Intelligence Scale, developed by Ang et al. (2007), was used. Its objective is to measure an individual's ability to adapt and interact effectively in culturally diverse contexts. The job satisfaction measurement scale was developed by Warr et al. (1979) and consists of 15 items to assess an individual's level of satisfaction with various aspects of their work environment, including their job function, relationships with colleagues and superiors, working conditions, and other factors. Based on the analysis of data collected from a sample of 161 immigrants, the results of simple linear regression indicate that cultural intelligence significantly influences job satisfaction and discrimination. Specifically, there is a positive relationship between cultural intelligence and job satisfaction, and a negative relationship between cultural intelligence and perceived workplace discrimination. Some implications for Management, particularly Human Resources Management, were made and presented.

Keywords: Cultural intelligence, Discrimination, Immigrant employees, Job satisfaction

1. Introduction

The International Organisation for Migration (IOM) reported that more than 281 million people worldwide were involved in migration-related movements in 2024 (IOM, 2024). Among European destinations, Portugal and Spain stand out as key receiving countries, both showing a notable rise in the share of foreign residents compared to their native populations (Ennes et al., 2018). Within Portugal's immigrant communities, Brazilians and nationals from the portuguese-speaking African countries (known by the acronym PALOP — Países Africanos de Língua Oficial Portuguesa) form a particularly notable group, linked to Portugal through a common language, a shared colonial history, and strong cultural connections.

Data from the 2024 Migration and Asylum Report show that the municipality of Braga was home to 28,538 immigrants, the majority of whom were Brazilian nationals.

This topic was chosen given the growing relevance of migrant employees to the labour markets of host nations. Immigrant communities play a key part in reinforcing local economies, helping to address labour gaps in specific industries and regions. Through this contribution, immigrant employees help revitalise and add dynamism to the areas where they live and work. Recognising and valuing this workforce is therefore essential to supporting broader economic and social development (Peri, 2016). Equally important is the promotion of equal treatment and mutual respect for all individuals, irrespective of background or cultural origin, so that fairness in opportunity and treatment is upheld for everyone.

Despite the challenges, it is essential that immigrant employees feel satisfied in their jobs. It is therefore extremely important to address the concept of job satisfaction in this study. Job satisfaction is understood as

how an employee feels about their job, the working environment, the salary, the colleagues and other factors (Wang and Jing, 2017).

The costs of absenteeism and of replacing an employee when they decide to leave the organisation are high and compromise organisational performance. Given that the immigrant workforce is crucial to addressing labour shortages, it is imperative to understand which factors may affect job satisfaction.

The social experiences of immigrants can have a significant impact on job satisfaction and how they perceive their work. In an organisation with a multicultural workforce, cultural intelligence is essential amongst employees to foster job satisfaction and to reduce workplace discrimination. Among these factors, cultural intelligence stands out, defined as an individual's ability to function effectively in distinct cultural contexts and adapt to different multicultural environments (Takdir et al., 2020).

The main objective of this study is to analyse the influence of immigrants' cultural intelligence on job satisfaction and perceptions of worplace discrimination.

2. Background

2.1 Cultural Intelligence

The common belief that cultural differences are becoming less significant due to globalisation is not always correct (Siripipatthanakul et al., 2023).

The concept of cultural intelligence is defined as the ability to operate effectively in different cultural contexts (Alifuddin and Widodo, 2022; Siripipatthanakul et al., 2023; Takdir et al., 2020). This concept has attracted the attention of researchers and professionals because it is a relevant topic and is directly linked to globalisation, international management and diversity management in the workplace (Bal and Kokalan, 2022; Puzzo et al., 2024).

Cultural intelligence is characterised by an individual's ability to adapt to different cultural environments, relating to different ethnic groups, nationalities and other distinct forms of culture (Ang et al., 2007). Cultural intelligence encompasses a range of behaviours and skills, such as knowledge of foreign languages and the presence in an individual of values such as tolerance, flexibility and acceptance, which facilitate relationships with people from other cultures (Van Dyne et al., 2010).

Cultural intelligence is a multidimensional concept comprising four types of intelligence: metacognitive, cognitive, motivational and behavioural. Metacognitive cultural intelligence reflects a person's cultural awareness during interactions with people from diverse cultures and backgrounds. Cognitive intelligence relates to an individual's knowledge of specific rules and practices in new cultural contexts. Motivational intelligence reflects an individual's desire to learn effectively in diverse cultural contexts. The final dimension, behavioural intelligence, is characterised by an individual's ability to adapt and demonstrate culturally appropriate behaviour when interacting with people from other cultures (Earley and Ang, 2003; Siripipatthanakul et al., 2023; Van Dyne et al., 2012).

2.2 Job Satisfaction

An employee is considered satisfied with their job when their overall attitude towards it is positive (Bal and Kokalan, 2022; Wang and Jing, 2017; Warr et al., 1979). This satisfaction encompasses relationships with managers and colleagues, as well as the working environment, the organisation of work, the management policies of the company in which they work, the technology used, organisational performance and economic and financial factors, such as salary and remuneration (Takdir et al., 2020; Vieira et al., 2023; Wang and Jing, 2017).

Factors such as a positive working environment that aligns with the cultural values of migrant workers can contribute to higher levels of job satisfaction (Ashraf and Sahni, 2024; Bal and Kokalan, 2022; Wang and Jing, 2017).

Job satisfaction is positively correlated with factors such as organisational commitment, trust in a particular organisation, organisational behaviour, and corporate culture. However, satisfaction – or a lack thereof – is also linked to negative aspects such as absenteeism and high staff turnover (Takdir et al., 2020; Wang and Jing, 2017).

2.3 Workplace Discrimination

Discrimination occurs when individuals are treated unequally based on the group they belong to, and it is generally understood as a harmful phenomenon that leads to disadvantage, exclusion, restricted opportunities, or unfair treatment (Lopes, 2024).

While often used interchangeably, prejudice and discrimination represent distinct concepts. Prejudice is an attitude with multiple components: a cognitive dimension (stereotyping), an emotional dimension (feelings toward the group), and a behavioural dimension (which can translate into discriminatory acts). Discrimination, by contrast, refers specifically to observable actions that produce exclusion, limit opportunities, hinder integration, or result in inequitable treatment (Lopes, 2024). Within the workplace context, this can take the form of assigning lower-status positions to members of a particular group or paying unequal wages to employees carrying out identical work. Such practices undermine successful integration into the workplace and diminish employees' overall job satisfaction (Lopes, 2024).

2.4 The Influence of Cultural Intelligence on Job Satisfaction and Workplace Discrimination

Cultural intelligence is an essential concept for understanding fundamental aspects such as strategy, motivation, performance and effective adaptation in culturally diverse contexts. As such, it serves as a valuable tool for job satisfaction in culturally diverse environments (Ashraf and Sahni, 2024; Bal and Kokalan, 2022). Cultural intelligence plays a key role in job satisfaction and is a determining factor in the quality of the organisational environment. Employees with high cultural intelligence tend to be more motivated to overcome challenges, adapt to new contexts and interact effectively with people from different cultures. These characteristics contribute significantly to their job satisfaction (Bal and Kokalan, 2022; Takdir et al., 2020). The ability to understand and adapt to organisational differences facilitates integration and collaboration in the workplace.

Immigrants with a high level of cultural intelligence have a greater understanding of cultural differences, which reduces conflicts and improves interactions between colleagues from different cultures. This contributes to a more satisfying working environment and higher professional performance. Conversely, immigrants with lower levels of cultural intelligence may find it difficult to understand different attitudes and values, which can lead to lower job satisfaction (Takdir et al., 2020). In multicultural organisational settings, employees with greater cultural intelligence demonstrate greater resilience and adaptability, fostering a more dynamic environment (Takdir et al., 2020). Furthermore, these employees are more likely to set clear objectives and achieve better performance, which leads to positive outcomes for the organisation. As they strive to improve the corporate environment and achieve organisational success, these employees also increase their own job satisfaction (Takdir et al., 2020). Employees with a greater ability to understand and adapt to different cultural contexts tend to report higher levels of job satisfaction (Bal and Kokalan, 2022; Takdir et al., 2020).

Discrimination is directly linked to job satisfaction. In organisational contexts where this phenomenon occurs, it becomes particularly difficult to achieve job satisfaction, as discrimination has a negative impact in this area (Amaram, 2007). In the labour market, the discrimination perceived by immigrants often manifests itself through unequal treatment compared with colleagues of other nationalities or cultures. These situations of injustice create inequalities between immigrant and native workers, undermining the creation of a more inclusive working environment (Dietz et al., 2015). Employees with a higher level of cultural intelligence, in culturally diverse environments, can develop a greater sense of belonging to the group and, consequently, reduce their sense of discrimination (Yao & Arif, 2024; Shore et al., 2009).

Consequently, the following hypotheses were formulated:

H1: *Cultural intelligence is positively related to immigrant employees' job satisfaction.*

H2: *Cultural intelligence is negatively related to immigrant employees' perceptions of discrimination.*

3. Methodology

3.1 Sample

The convenience sample is composed of 161 migrants (n=161). The most represented age group in the sample is 30- 39 years old (46,58%), followed by the 18–29 age group (32,92%). Regarding gender, 56,52% are male and 43,48% are female.

The sample is predominantly composed of Brazilian migrants (n=97, 60,2%), with a smaller representation of PALOP migrants (n=9, 5,6%) and other nationalities (n=55, 34,2%), including Venezuelan, Ukrainian, Bangladeshi, German-Indian, Swedish, Ecuadorian, and Bolivian respondents.

3.2 Measures

To assess cultural intelligence, the Cultural Intelligence Scale, developed by Ang et al. (2007), was used. The original scale comprises 20 items spread across the four dimensions of cultural intelligence: metacognitive, cognitive, motivational, and behavioural. In the present study, 18 of the 20 original items were used. It is important to emphasise that, in this study, the dimension of cultural intelligence will be analysed as a whole, following the approach taken in other similar studies (Bal and Kokalan, 2022; Takdir et al., 2020).

The job satisfaction measurement tool was developed by Warr et al. (1979) and comprises 15 items that measure individuals' satisfaction with various aspects of their working environment, including the role they perform, their relationships with colleagues and superiors, and working conditions, among other factors. In addition to these 15 items, the scale also includes a separate item – also used in this study – which allows respondents to assess their overall job satisfaction. 11 of the 15 items from the original scale were used.

To measure workplace discrimination, the Everyday Discrimination Scale, developed by Williams et al. (1997), was used. The scale was adapted to the workplace context, retaining 7 items that best reflected the organisational context.

4. Results

4.1 Descriptive Statistics and Reliability Analysis

Prior to the correlation and regression analyses, descriptive statistics and reliability analyses were conducted to evaluate the cultural intelligence and job satisfaction scales. Means, standard deviations, and Cronbach's alpha coefficients were calculated using IBM SPSS Statistics to assess the reliability of the measurement scales.

4.1.1 Descriptive statistics and reliability analysis - cultural intelligence

The mean score for cultural intelligence was 5,24 on the seven-point scale (SD = ,933), indicating moderate variability, indicating moderate variability in participants' responses. The scale demonstrated excellent internal consistency, with a Cronbach's alpha coefficient of ,937 (Table 1).

Table 1: Descriptive Statistics and Reliability Analysis - Cultural Intelligence

Cultural Intelligence	N	Mean	SD	Cronbach's alpha
	161	*5,24*	*,933*	*,937*

These findings confirm that the cultural intelligence scale demonstrated excellent internal reliability.

4.1.2 Descriptive statistics and reliability analysis - job satisfaction

Participants reported a mean job satisfaction score of 5,23 on the seven-point scale (SD = 1,166), suggesting a moderate degree of variability across responses. The job satisfaction scale also demonstrated excellent internal consistency, as reflected by a Cronbach's alpha coefficient of ,954 (Table 2).

Table 2: Descriptive Statistics and Reliability Analysis - Job Satisfaction

Job Satisfaction	N	Mean	SD	Cronbach's alpha
	161	*5.23*	*1,166*	*,954*

4.1.3 Descriptive statistics and reliability analysis - workplace discrimination

Following reverse coding, workplace discrimination scores ranged from 0 to 5. Participants reported a mean score of,82 (SD = ,992), indicating relatively low perceived workplace discrimination with moderate variability across responses. The scale also demonstrated excellent internal consistency, as reflected by a Cronbach's alpha coefficient of ,912 (Table 3).

Table 3: Descriptive Statistics and Reliability Analysis - Workplace Discrimination

Workplace Discrimination	N	Mean	SD	Cronbach's alpha
	161	,82	,992	,912

The scale was reverse coded prior to analysis so that higher scores reflected higher levels of perceived workplace discrimination, consistent with the original coding procedure described by Williams et al. (1997).

4.2 Correlations and Regression Analysis

4.2.1 Correlations and regression analysis between cultural intelligence and job satisfaction

The initial Pearson correlation analysis revealed a moderate, positive, and statistically significant association between cultural intelligence and job satisfaction (r = ,347, *p* < ,001).

Table 4: Pearson Correlation between Cultural Intelligence and Job Satisfaction

	Cultural Intelligence	Job Satisfaction
Cultural Intelligence	_	_
Job Satisfaction	,347**	_

** p < ,001

This finding suggests that immigrant employees with higher levels of cultural intelligence generally reported greater job satisfaction (Table 4).

Before fitting the regression model, the data were examined for influential cases. Two observations (7 and 90) were identified as outliers because they produced the largest residuals and had the potential to affect the regression estimates. Observation 7 had a residual of 3,603, with a cultural intelligence score of 1, well below the sample mean (5,24), and a job satisfaction score of 7, above the sample mean (5,23). Observation 90 showed the opposite pattern, with a residual of −4,662, a cultural intelligence score of 7, and a job satisfaction score of 1. As these cases represented extreme and contrasting response patterns, they were excluded from the subsequent analyses to improve the robustness of the model.

After excluding the two outliers, the correlation between cultural intelligence and job satisfaction increased to r = ,478 (p < ,001), indicating a stronger positive association after the data were screened for influential cases (Table 5).

Table 5: Pearson Correlation between Cultural Intelligence and Job Satisfaction (No Outliers)

	Cultural Intelligence	Job Satisfaction
Cultural Intelligence	_	_
Job Satisfaction	,478**	_

** p < ,001

The regression analysis was then performed using the remaining 159 participants. Cultural intelligence emerged as a significant positive predictor of job satisfaction (β = ,478, t = 6,811, p < ,001), indicating that higher levels of cultural intelligence were associated with higher levels of job satisfaction among immigrant employees.

Table 6 presents the regression coefficients. The unstandardised coefficient (B = ,615) indicates that, on average, job satisfaction increases by ,615 units for each one-unit increase in cultural intelligence.

The regression equation is therefore:

Job Satisfaction = 2,017 + ,615 × Cultural Intelligence

Table 6: Regression Analysis between *Job Satisfaction* and *Cultural Intelligence*.

	Non padronized coefficients		Padronized coefficients	*t*	*p*
Model	**B**	**standard error**	**Beta**		
constant	2,017	,481		4,194	<,001
Cultural Intelligence	,615	,090	,478	6,811	<,001

Dependent variable: Job Satisfaction

Taken together, the correlation and regression analyses provide support for Hypothesis 1 by demonstrating a positive and statistically significant relationship between cultural intelligence and job satisfaction among immigrant employees. Employees with higher cultural intelligence consistently reported greater job satisfaction.

4.2.2 Correlations and regression analysis between cultural intelligence and workplace discrimination

Cultural intelligence and workplace discrimination showed a low-to-moderate, negative, and statistically significant correlation in an initial analysis (r = -,237, p < ,001). This finding indicates that immigrant employees with higher cultural intelligence tended to report experiencing less discrimination in the workplace (Table 7).

Table 7: Pearson Correlation between Cultural Intelligence and Workplace Discrimination

	Cultural Intelligence	Job Satisfaction
Cultural Intelligence	_	_
Workplace Discrimination	-,237**	_

** p < ,001

Prior to the regression analysis, the assumptions of linearity, homoscedasticity, and the absence of influential observations were assessed. Several influential cases were identified during this process.

Four successive regression analyses led to the identification of ten outliers (cases 4, 7, 35, 79, 90, 111, 112, 142, 143, and 150), which displayed response patterns that differed substantially from those observed in the remainder of the sample. Consequently, these cases were excluded from the final model.

Following the exclusion of these observations, the correlation coefficient increased to r = -,279 (p < ,001) (Table 8), indicating a stronger negative association between cultural intelligence and workplace discrimination.

Table 8: Pearson Correlation between Cultural Intelligence and Workplace Discrimination (No Outliers)

	Cultural Intelligence	Job Satisfaction
Cultural Intelligence	_	_
Workplace Discrimination	-,279**	_

** p < ,001

The regression model was then re-estimated using the remaining observations. Cultural intelligence emerged as a significant predictor of workplace discrimination (β = -,279; t = -3,540; p < ,01).

The unstandardized coefficient (B = -,216) indicates that each one-unit increase in cultural intelligence is associated with a ,216-unit decrease in workplace discrimination, meaning individuals with higher cultural intelligence tend to report lower levels of perceived discrimination (Table 9)

The model equation is therefore:

Workplace Discrimination = 1,767 – ,216 × Cultural Intelligence

Table 9: Regression Analysis between Workplace Discrimination and Cultural Intelligence.

	Non padronized coefficients		Padronized coefficients	*t*	*p*
Model	**B**	**standard error**	**Beta**		
Constant	1,767	,324		5,448	<,001
Cultural Intelligence	-,216	,061	-,279	-3,540	<,001

Dependent variable: Workplace Discrimination

Collectively, the correlation and regression analyses support Hypothesis 2 by indicating that cultural intelligence is negatively associated with workplace discrimination. Employees with higher cultural intelligence tended to report lower workplace discrimination.

5. Discussion and Conclusions

Cultural intelligence may be defined as an individual's capacity to comprehend, respect, and adapt to distinct cultures through the adjustment of language use, values and behavioural patterns. This competence facilitates the recognition of cultural diversity and its strategic application, thereby enabling effective interaction within culturally diverse environments (Takdir et al., 2020). Within the organisational context, cultural intelligence assumes a crucial role insofar as it facilitates individuals' integration into the organisation. Moreover, it has been associated with direct and positive effects on job satisfaction (Bal and Kokalan, 2022).

Job satisfaction can be understood as an individual's perception of their professional experience, including their integration into the team, the performance of their duties and, more generally, their well-being in the workplace (Bal and Kokalan, 2022; Wang and King, 2017). Job satisfaction is closely linked to motivation to perform one's duties and to well-being in the workplace. Among the various factors influencing job satisfaction, cultural intelligence stands out, as it enables employees to adapt more effectively to diverse contexts and to interact in culturally diverse settings. It is essential to consider cultural intelligence as a factor that can enhance job satisfaction; employees with a greater ability to understand and respect cultural differences – that is, those possessing cultural intelligence – tend to report higher levels of job satisfaction (Ashraf and Sahni, 2024). Therefore, cultural intelligence in the workplace appears to be a highly useful skill in helping employees feel more satisfied at work, according to the literature (Ashraf and Sahni, 2024; Jiang et al., 2018; Takdir et al., 2020).

Hypothesis 1 examines the relationship between cultural intelligence and job satisfaction among immigrant employees. The hypothesis posits that immigrant employees with a higher level of cultural intelligence demonstrate greater job satisfaction. The results, obtained using Pearson's correlation and simple linear regression, confirm this hypothesis. A significant positive relationship is observed, supporting the hypothesis and reinforcing previous evidence regarding the importance of cultural intelligence for job satisfaction (Takdir et al., 2020).

Cultural intelligence contributes to greater integration and helps reduce feelings of discrimination in diverse work groups (Alexandraa et al., 2021). For minorities, such as immigrant employees, who face discrimination in various workplace situations, cultural intelligence acts as a supportive factor, as it helps individuals to adapt and consequently increases their job satisfaction (Le et al., 2016).

Hypothesis 2 examines the relationship between cultural intelligence and workplace discrimination among immigrant employees. The hypothesis posits that immigrant employees with a higher level of cultural intelligence demonstrate lower perceptions of discrimation. The results, obtained using Pearson's correlation and simple linear regression, confirm this hypothesis.

According to Yao and Arif (2024), a high level of cultural intelligence enables individuals to recognise and overcome discriminatory situations through better cultural and linguistic adaptation within an organisational context. Furthermore, employees with a higher level of cultural intelligence are able to identify similarities with other colleagues, even in culturally diverse environments. This can lead to a greater sense of belonging to the group and, consequently, reduce feelings of discrimination and/or exclusion (Shore et al., 2009; Yao and Arif, 2024).

In line with the findings, it is worth reflecting on the role of HRM in reducing discrimination and increasing job satisfaction amongst migrant workers. Managing cultural diversity is essential to avoid discriminatory situations (Shore et al., 2009) and to promote greater job satisfaction (Xia et al., 2022).

Each organisation has its own culture and integration methods (Abrantes et al., 2021), and it is vital that HRM understands how to optimise these processes. It is therefore important to develop practices that prevent discrimination and promote job satisfaction. This gives rise to solutions such as providing training to foster an understanding of other cultures, as well as awareness-raising initiatives on the importance of cultural diversity (Edewor and Aluko, 2007; Patrick and Kumar, 2012).

HR professionals can directly influence job satisfaction and reduce perceptions of discrimination. These professionals should supervise management practices and be aware of the organisational climate in order to promote a more satisfying working environment. In contexts where such support is lacking, the likelihood of feelings of exclusion and discrimination increases. Furthermore, strategies such as mentoring by colleagues or line managers, particularly for employees who are new to the organisation or the country, contribute to their inclusion in a more positive way (Patrick and Kumar, 2012).

Given that cultural intelligence has been shown to influence job satisfaction, it is important to understand how this competence can be fostered within an organisational context. Assessing the level of cultural intelligence during the recruitment process, using appropriate tools, can facilitate integration and adaptability to the organisational culture. It is essential that HRM understands how to assess the cultural intelligence of an immigrant individual and how this can benefit the organisation. Candidates with a higher level of this competence tend to adapt more easily to the workplace, as they are able to understand and interact effectively with people from different cultures and in culturally diverse contexts (Jiang et al., 2018). Thus, assessing cultural intelligence at the selection or recruitment stage can be a very important step.

One of the study's limitations was the homogeneity of the sample, which consisted predominantly of Brazilian and PALOP immigrants. Immigrants of other nationalities were under-represented.

Future studies should include cultural intelligence as an individual variable that may act as a mediator between workplace discrimination and job satisfaction. It is also suggested that the relationship between cultural intelligence and discrimination be analysed in conjunction with other factors, including socio-demographic variables, in order to gain a deeper understanding of the factors that influence perceptions of discrimination. Such approaches could contribute to more effective and inclusive organisational strategies in the workplace for immigrant employees. Studies involving larger samples are also needed.

Acknowledgement

This work was supported by national funds through FCT/MCTES (PIDDAC): UID/04752 – Applied Management Research Unit (UNIAG).

Ethics Declaration: This study did not require ethical clearance for the research referred to in this paper.

AI Declaration: The authors utilized Grammarly, an AI-based writing assistant, solely to enhance language clarity, grammar, and style. All conceptual contributions, analyses, and conclusions presented in this manuscript are entirely the responsibility of the authors.

References

AIMA - Agência para a Integração, Migrações e Asilo (2024). *Relatório de migrações e asilo 2024.* AIMA .

Alexandraa, V., Ehrhart, K. H., and Randel, A. E. (2021). "Cultural intelligence, perceived inclusion, and cultural diversity in workgroups", *Personality and Individual Differences,* Vol 168*, 110285. https://doi.org/10.1016/j.paid.2020.110285*

Alifuddin, M., and Widodo, W. (2022). "How is cultural intelligence related to human behavior?" *Journal of Intelligence*, Vol 101, No. 1, https://doi.org/10.3390/jintelligence10010003

Ang, S. et al. (2007). "Cultural Intelligence: Its Measurement and Effects on Cultural Judgment and Decision Making, Cultural Adaptation and Task Performance", *Management and Organization Review,* Vol 3, pp 335-371. https://doi.org/10.1111/j.1740-8784.2007.00082.x

Amaram, D. I. (2007). "Cultural Diversity: Implications For Workplace Management", *Journal of Diversity Management (JDM),* Vol 2, No. 4, pp 1-6. https://doi.org/10.19030/jdm.v2i4.5017

Ashraf, A., and Sahni, N. (2024). "Cultural Intelligence and job satisfaction: a study of hotel employees", *TEC Empresarial,* Vol 6, No. 1, pp. 552-567. https://revistastecac.com/index.php/TEC/article/view/211/212

Bal, Y., and Kokalan, O. (2022). "The Moderating Effect of Cultural Intelligence on the Relationship Between Emotional Intelligence and Job Satisfaction", *Frontiers in Psychology,* Vol 13*,* pp 1664-1078. *https://doi.org/10.3389/fpsyg.2022.900546*

Dietz, J. et al. (2015). "The skill paradox: explaining and reducing employment discrimination against skilled immigrants", *The International Journal of Human Resource Management,* Vol 26*,* No. 10, pp 1318-1334. https://doi.org/10.1080/09585192.2014.990398

Earley, P., & Ang, S. (2003). *Cultural intelligence: Individual interactions across cultures*. Stanford University Press

Edewor, P., and Aluko, Y. (2007). "Diversity Management, Challenges and Oportunities in Multicultural Organizations", *The International Journal of Diversity in Organizations, Communities & Nations,* Vol 6*,* No *6*, pp 189-196. https://doi.org/10.18848/1447-9532/CGP/v06i06/39285

Ennes, M., Ramos, N., and Suaréz, B. (2018). "O Lugar do Interculturalismo nas Políticas Imigratórias em Portugal e Espanha", *Revista TOMO,* Vol. 32, pp 243-268. http://hdl.handle.net/10400.2/7337

International Organisation for Migration (IOM)/Organização Internacional para as Migrações, [OIM]. (2024). *Relatório Mundial sobre Migração 2024.*

Jiang, Z., Le, H., and Gollan, P. (2018). "Cultural intelligence and voice behavior among migrant workers: the mediating role of leader–member exchange", *The International Journal of Human Resource Management,* Vol 29*,* No. 5, pp 1082-1112. https://doi.org/10.1080/09585192.2017.1322119

Le, H., Nielsen, I., and Smyth, R. (2016). "Cognitive Cultural Intelligence and Life Satisfaction of Migrant Workers The Roles of Career Engagement and Social Injustice", *Springer,* Vol 139, No. 1, pp 237-257. https://doi.org/10.1007/s11205-016-1393-3

Lopes, R. C. (2024). *Preconceito e Discriminação em Portugal.* Fundação Francisco Manuel dos Santos.

Patrick, H., and Kumar, V. (2012). "Managing Workplace Diversity: Issues and Challenges", *SAGE Open,* Vol 2, No. 2*. https://doi.org/10.1177/2158244012444615*

Peri, G. (2016). "Immigrants, Productivity, and Labor Markets", *Journal of Economic Perspectives*, Vol 30, No. 4, pp 3-30. https://doi.org/10.1257/jep.30.4.3

Puzzo, G. *et al.* (2024)."The impact of cultural intelligence on burnout among practitioners working with migrants: an examination of age, gender, training, and language proficiency", *Current Psychology,* Vol 43, pp 4443–4457. https://doi.org/10.1007/s12144-023-04641-x

Shore, L. et al. (2009). "Diversity in organizations: Where are we now and where are we going?", *Human Resource Management Review,* Vol 19*,* No. 2, pp 117-133. https://doi.org/10.1016/j.hrmr.2008.10.004

Siripipatthanakul, S., Sitthipon, T., and Jaipong, P. (2023). "A Review of Cultural Intelligence for Today's Globalised World", *World Journal of English and Linguistic Studies,* Vol 1, No. 1, pp 1-8.

Takdir, S., Syah, T. Y., and Anindita, R. (2020). "Cultural Intelligence Effect on Job Satisfaction over Employee Performance", *Science, Engineering and Social Science Series,* Vol 4, No. 1, pp *28-33. https://www.kemalapublisher.com/index.php/JoMA/article/view/426/427*

Vieira, J. A. et al. (2023). "Climbing the ladders of job satisfaction and employee organizational commitment: cross-country evidence using a semi-nonparametric approach", *Journal of Applied Economics,* Vol 26, No. 1*, 2163581. https://doi.org/10.1080/15140326.2022.2163581*

Wang, Z., and Jing, X. (2017). "Job Satisfaction Among Immigrant Workers: A Review of Determinants", *Social Indicators Research,* Vol 139, pp 381-401. https://doi.org/10.1007/s11205-017-1708-z

Warr, P., Cook, J., and Wall, T. (1979). "Scales for the measurement of some work attitudes and aspects of psychological well-being", *Journal of Occupational Psychology,* Vol *52*, pp 129-148. https://doi.org/10.1111/j.2044-8325.1979.tb00448.x

Williams, D. et al. (1997). "Racial Differences in Physical and Mental Health", *Journal of Health Psychology*, Vol 2, No. 3, pp 335–351. https://doi.org/10.1177/135910539700200305

Xia, L. et al. (2022). "A gestão da diversidade cultural e o seu impacto no bem-estar dos colaboradores", *Proceedings of the 6th International Conference on Innovation and Entrepreneurship in Marketing & Consumer Behaviour*, pp. 350-361).https://doi.org/10.34624/iciemc.v0i3.29812

Yao, D., & Arif, L. S. (2024). "A Study on the Influence of Employees' Culture Intelligence on Their Inclusion", *Pakistan Journal of Life and Social Sciences,* Vol 22, No. 2*,* pp 20801-20812. https://doi.org/10.57239/PJLSS-2024-22.2.000180

Evaluating Sustainable Implementation of National Innovation Systems through Technology Audits: Evidence from Brazil's SENAI Innovation Network

Fabian Hecklau[1], Markus Will[1], Florian Kidschun[1] and Holger Kohl[2]
[1]Fraunhofer IPK, Division Corporate Management, Berlin, Germany
[2]Technical University of Berlin, Department Sustainable Corporate Development, Berlin, Germany

fabian.hecklau@ipk.fraunhofer.de
markus.will@ipk.fraunhofer.de
florian.kidschun@ipk.fraunhofer.de
holger.kohl@tu-berlin.de

Abstract: As evidence of the successful implementation of SENAI's national network of 28 Innovation Institutes in Brazil, this paper summarizes longitudinal results from two rounds of technology audits conducted between 2017 and 2025. The audits are part of an overall strategic planning approach that includes business model development, implementation support, and recurring evaluation in order to support the systematic establishment of a macro-level innovation system in an emerging economy. Within this context, a standardized technology audit methodology was applied across three core dimensions: technology base, products and services, and cooperation. Twenty-three institutes completed two audit cycles and therefore constitute the longitudinal sample, enabling an analysis of development at institute and network level. The results show consistent and relevant improvements of 24% in the technological base, including equipment, infrastructure, and competences. Improvements of 20% can be observed in the technological products and services developed by the institutes, while cooperation activities within the innovation system, for example with industrial and research partners, increased by 23% from the first to the second audit cycle. The paper presents results and key learnings from eight years of technological evaluation and discusses how such approaches can support the sustainable implementation and strategic development of innovation systems and structures.

Keywords: Sustainable business model implementation, Evaluation, Technology audit, Technology assessment, Innovation management

1. Introduction

Research and technology organizations (RTOs) play an important intermediary role between scientific knowledge creation and industrial application (EURAB 2005; OECD 2011). By transforming research results into industrially relevant technologies, products, and services, they contribute significantly to the innovative capacity and overall performance of national innovation systems (Freeman 1987; EARTO 2016; Hecklau et al. 2020). In emerging economies the establishment of such intermediary organizations is particularly challenging. In contrast to more mature innovation environments, key preconditions for successful operation, including technological capabilities, market-oriented demand, qualified human resources, and stable cooperation structures, often have to be developed simultaneously (Bell and Pavitt 1992; Mazzoleni and Nelson 2007). As a result, the development of RTOs is not merely an organizational task, but a broader systemic process that depends on the coordinated evolution of multiple innovation-related capacities. Brazil provides a particularly relevant case (Figueiredo 2014). Since 2012, the SENAI Innovation Institutes have been established as a national applied R&D network to raise the innovation capacity and competitiveness of Brazilian industry, established by SENAI, and the National Confederation of Industry, supported by the Brazilian Development Bank, and Fraunhofer partners (Kohl et al. 2020).

Research infrastructure alone is not sufficient to ensure the successful development of applied R&D institutes. The central challenge lies in enabling these institutes to evolve into robust, demand-oriented, and technologically advanced organizations. This requires suitable management methodologies and instruments that support a systematic analysis of their technological status quo and development needs. For strategic steering, it is essential to understand whether institutes possess an adequate technology base, whether they are able to translate this base into valuable technological results, and whether they are sufficiently embedded in cooperation structures that broaden and strengthen their capability set. In the SENAI context, this challenge clearly revealed the need for a suitable methodology to analyze and evaluate the technological maturity of the institutes. As a consequence, a technology audit methodology specifically designed for applied R&D organizations was developed and applied over the long term (Hecklau et al. 2022, 2023; Hecklau 2024).

Against this background, this paper analyzes the longitudinal results of two rounds of technology audits conducted between 2017 and 2025 for 23 SENAI Innovation Institutes in Brazil. To provide the necessary analytical context, the paper first briefly introduces the technology audit methodology and its underlying assessment logic. It then presents the results of the two comprehensive audit rounds and compares the findings across both periods, with particular attention to the observed changes in the assessed dimensions. Based on these results, the paper derives key insights for the further development of the SENAI Innovation Institute network and discusses broader implications for the sustainable implementation of national innovation systems and the governance of applied R&D networks. This perspective is particularly relevant because sustainable industrial transformation depends not only on individual technologies, but also on capable institutions that generate, adapt, and diffuse such technologies over time.

2. Methodological Background of the Technology Audit

The technology audit is a methodology designed to analyze and evaluate the technological maturity of applied R&D organizations. Its purpose is to provide a structured understanding of whether an organization possesses the technological resources, capabilities, and external linkages required to perform state-of-the-art research and development and to translate these activities into technologically relevant results for the industry. In this respect, the method extends beyond the assessment of managerial routines or quantitative output indicators by focusing specifically on the technological maturity of an organization.

To assess this maturity, the technology audit examines three core dimensions: Technology Base, Products and Services, and Cooperation. The dimension Technology Base addresses the technological and organizational foundations of R&D activities, including technological strategy, infrastructure, equipment, and competences. Products and Services focuses on the extent to which these foundations are translated into technologically advanced and market-relevant results, such as innovative solutions for industry. The dimension Cooperation assesses the extent to which an organization is embedded in relevant technological partnerships and innovation networks that complement and expand its own capability base (Etzkowitz and Leydesdorff 2000). Taken together, these dimensions allow for a comprehensive assessment of the technological status quo and development needs of an applied R&D organization.

The technology audit was developed through method engineering, which supports the systematic construction of context-specific methods from established method elements (Henderson-Sellers et al. 2014). Its development was based on a structured synthesis of 30 sources. In particular, six existing approaches were analyzed in depth as methodological foundations: the evaluation of industry-oriented research organizations, the Technology Effectiveness Audit Model, the Technology Management Process Assessment, the Technological Capability Assessment, the Model for Technological Capability Assessment in R&D Centers and the Strategic Business Planning Procedure (Kuhlmann and Holland 1995; Garcia-Arreola 1996; Phaal et al. 2001; Rush et al. 2007; Mohammad et al. 2010; Kohl et al. 2020). Broader research on RTO evaluation informed the RTO-specific context of the method (Martinez-Vela 2016). The resulting technology audit was subsequently refined through repeated applications in Brazil (Hecklau et al. 2019; Hecklau 2024). The procedure combines standardization and expert judgment. Standardization is ensured through a common maturity model, predefined dimensions and assessment items, structured templates, and clearly defined workshop steps. Expert judgment is incorporated through the involvement of a technology auditor with domain-specific research experience, thereby enabling a deeper qualitative assessment of the institute's technological profile (Hecklau et al. 2022). This combination is essential, since technological capability cannot be assessed adequately through document analysis alone.

Table 1: Dimensions of the Technology Audit

Dimension	Analytical Role	Assessment Items
Technology Base	Input dimension: analyses the technological and organizational inputs required to carry out the R&D activities of an RTO and assesses the extent to which these inputs are sufficiently mature to support the delivery of the institute's defined R&D services.	Technologies, infrastructure, equipment/software, competences, and technological strategy used to execute R&D projects.
Products and Services	Output dimension: analyses the technological results generated through R&D activities and assesses the extent to which the institute translates its technological base into innovative products and technological services relevant to industry.	Complexity and innovativeness of R&D results and the translation of technologies into industrial solutions, products, and services.

Dimension	Analytical Role	Assessment Items
Cooperation	Support dimension: analyses the cooperation structures that support R&D activities and assesses the extent to which the institute is connected to the right partners in order to complement its own capabilities and generate innovative technological results.	Technological synergies through collaboration with RTOs, universities, companies, service providers, customers, and the wider innovation ecosystem.

The audit process follows a standardized approach (Hecklau et al. 2022, 2023) that is designed to generate a comprehensive and reliable understanding of the technological maturity of an applied R&D organization. It begins with a preparation phase in which the relevant information on the R&D portfolio, competences, equipment base, and service areas is collected and reviewed in order to ensure a sufficiently robust basis for the assessment. The subsequent audit process focuses on the analysis of the institute's R&D strategy, its past and ongoing projects, its laboratory infrastructure and technological resources, its position in relation to relevant benchmarks and the state of the art, as well as its future technological development perspectives. The findings are synthesized in a structured report as basis for further developments. In the SENAI application context, this process was supported by on-site visits in Brazil and, where required, by the remote participation of additional technology experts (Hecklau et al. 2023).

The assessment itself is based on a standardized five-level maturity scale. Maturity level 1 denotes minimal technological maturity, whereas level 5 represents very high technological maturity in relation to the analyzed state of the art and relevant benchmarks. A score of 3 indicates sufficient maturity to perform R&D activities in the respective technological service areas of the institute. Scores of 4 or higher indicate the capability to conduct complex R&D activities and to develop highly innovative technological solutions (Hecklau et al. 2022; Hecklau 2024).

This methodology formed the methodological basis for its long-term application in the SENAI Innovation Institute network in Brazil. The following section presents and discusses the results generated through these technology audits.

3. Results

Since 2017, the technology audit has been applied systematically within the SENAI Innovation Institute network in Brazil (Hecklau et al. 2019, 2024). Of the network's 28 institutes, 23 had been operational long enough to complete two full audit cycles and form the longitudinal sample of 46 technology audits. Three newer operational institutes had completed one audit each, bringing the total to 49. Two further institutes were still under implementation and had not yet been audited. The audits were supported by 18 Fraunhofer Institutes, whose technology experts contributed as auditors across the different technological fields.

The results of these 46 technology audits provide a robust basis for assessing technological development over time at both institute and network level. The following analysis first presents the aggregated results across the three core dimensions before discussing selected patterns and implications in detail.

The most important finding is the consistent improvement across all three dimensions between the first and second rounds of technology audits. According to the consolidated results, the average maturity score in Technology Base increased from 2.9 to 3.6, corresponding to an improvement of 24%. In Products and Services, the average score rose from 2.7 to 3.2, representing an improvement of 20%. Cooperation increased from 2.5 to 3.1, corresponding to an improvement of 23%. This development is particularly relevant as the first-round averages were still positioned around the threshold between low (<3) and sufficient maturity (=3), whereas the second-round averages are clearly located within the range of sufficient maturity (>3) and, in the case of Technology Base, already move towards a more advanced maturity level. Figure 1 illustrates these developments.

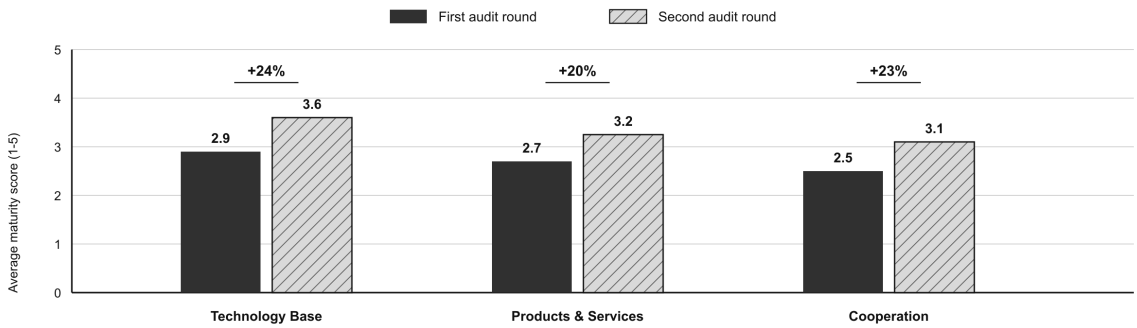


Figure 1: Average maturity levels across the two audit rounds based on the consolidated results

Beyond the aggregated results presented above, a more differentiated view of the three assessment dimensions provides further insights into the technological development of the network over time.

The highest average scores were achieved in the dimension Technology Base. This pattern is plausible in light of the developmental logic of a newly established applied R&D network. Substantial early investments, particularly those financed by the Brazilian Development Bank BNDES, in laboratories, equipment, software, and staff qualification created the necessary preconditions for later innovation activities and contributed significantly to the comparatively strong results in this dimension. The observed increase therefore reflects more than incremental progress. Rather, it indicates that many institutes advanced from a stage characterized by partial capabilities and limited technological resources towards a more systematic, credible, and operationally robust basis for conducting R&D activities.

The development in Products and Services is equally noteworthy, as this dimension captures the extent to which technological resources are effectively translated into relevant R&D outputs. With an average score of 3.2 in the second audit round, the network moved beyond a stage primarily characterized by isolated activities or lower-complexity project work and reached, on average, a level of sufficient technological output maturity. This suggests that the institutes increasingly succeeded in converting their installed competences and technological resources into innovative and industrially relevant offerings.

Cooperation also improved substantially over time. This result is plausible, as cooperation depends not only on the internal maturity of an institute, but also on external conditions such as the availability of suitable partners, complementary competences, and the broader density and quality of the surrounding innovation ecosystem. The observed increase therefore suggests that cooperation is the dimension in which institutional development and external framework conditions interact most strongly. While technological capability can be strengthened within an institute through targeted investments and capability-building measures, cooperation additionally requires relational embeddedness and institutional alignment beyond the boundaries of the individual organization.

A further important finding concerns the qualitative significance of maturity level 3. In the first audit round, the average values across all three dimensions were still located close to the threshold under sufficient maturity. In the second round, all aggregate values exceeded this threshold. This indicates that the network, on average, reached a level at which the institutes were no longer merely operational, but sufficiently mature to perform their research activities in a structured and strategically guided manner. Given that maturity level 4 denotes the ability to address complex R&D tasks and generate highly innovative solutions, the central challenge is no longer basic stabilization, but the selective advancement of institutes and dimensions towards more advanced levels of technological performance.

4. Discussion

The results support a staged interpretation of institutional capability building in applied research networks. Technology Base appears to function as the enabling foundation for the further development of applied R&D institutes. Investments in scientific equipment, laboratory infrastructure, software, technological strategy, and staff competences produced the clearest and earliest gains. In the SENAI case, this development was supported in particular by targeted investments, including funding provided through BNDES. Despite comparatively high staff turnover in parts of the network, technological competences were increasingly stabilized through training measures and strategic recruitment. At the same time, future technological trends were increasingly identified and reflected in strategic considerations regarding the further development of infrastructure and skills. These

developments help explain why Technology Base achieved the strongest average results across the three dimensions.

Products and Services also improved considerably, indicating that capability building did not remain confined to internal resource accumulation, but increasingly translated into relevant technological outputs. This is particularly important, as the dimension captures whether the installed competences and resources of an institute are effectively converted into customized technological solutions, products, and services for industry. The results suggest clear progress in this regard. At the same time, they also indicate that the generation of highly innovative outcomes remains a developmental task rather than a fully achieved state across the network. While technological roadmaps and strategic orientations for future service development are increasingly in place, their consistent implementation appears to remain an important field for further strengthening the output side of the institutes.

Cooperation improved as well. This result is plausible, as cooperation depends not only on the internal maturity of an institute, but also on the availability of suitable partners, complementary competences, and the broader quality of the surrounding innovation ecosystem. The findings suggest that collaboration has improved particularly at the local and regional level. However, internal collaboration across the SENAI Innovation Institutes still appears not sufficient to systematically enable joint technological development within the network. In addition, cooperation with international and other external R&D actors remains comparatively limited, leaving untapped potential for the co-creation of more advanced and innovative technological solutions. In this sense, cooperation remains the dimension in which institutional maturity and systemic context interact most strongly.

From a governance perspective, the findings underline the value of technology audits as more than an isolated evaluation instrument. In the SENAI context, they form part of a broader strategic management architecture that links planning, implementation, and evaluation (Kohl et al. 2020). Alongside the technology audits, management audits / management pacts are conducted that focus more strongly on the implementation of institute strategies and also incorporate more conventional innovation and performance indicators, such as revenue, patents, or project counts (Kohl et al. 2020; Hauschildt et al. 2023). The specific contribution of the technology audit lies in complementing this perspective by making technological maturity visible in a structured and comparable way. It extends the evaluation logic beyond managerial implementation and conventional innovation KPIs by linking resource endowment, technological output, and cooperation capacity within a common maturity framework. In this way, it helps to explain not only whether institutes perform, but also how far they possess the technological capability base required for sustainable performance.

The maturity scores used in this study are based on expert assessments. Although they follow a standardized approach, they are not directly comparable to conventional performance indicators such as revenues, patents, or scientific output. Moreover, the technology audit concept was refined over time through the introduction of additional methodological detail, including an updated version from 2023 onward. At the same time, the core dimensions and the underlying maturity logic remained stable, thus ensuring the comparability of the results (Hecklau et al. 2023). Furthermore, the longitudinal comparison presented here is limited to the subset of institutes for which two complete audit rounds were available in the consolidated final material. Future research should therefore aim to link audit results more systematically with performance and impact indicators at project, institute, and regional level. The present paper reports consolidated mean scores and does not include institute-level dispersion measures or paired significance tests. The observed changes are therefore interpreted descriptively rather than as statistically significant effects. Future analyses should apply paired tests to the underlying institute-level scores and report appropriate dispersion measures.

5. Conclusion

This paper analyzed the longitudinal development of 23 SENAI Innovation Institutes in Brazil based on two rounds of technology audits conducted between 2017 and 2025. The results show consistent improvements across all three dimensions of technological maturity and indicate that the network has moved from an initial ramp-up phase towards a more stable and technologically credible level of operation.

The broader innovation system relevance of these findings becomes clearer when they are related to external evidence. Brazil ranked 52nd in the Global Innovation Index 2025 and is identified as an economy that continues to overperform relative to its level of development (WIPO 2025). At the same time, a recent macroeconomic impact study by Fraunhofer IPK and Fraunhofer ISI found that the SENAI Innovation Institutes induced 0.66% of Brazil's GDP, with positive and statistically significant effects on regional GDP per capita (Kohl et al. 2025; Schubert et al. 2025). The present paper operates at a different analytical level, yet the findings are

complementary. The macro study shows that the network matters economically. The technology-audit results help explain why: over time, the institutes built stronger technological foundations, produced more advanced outputs, and intensified relevant cooperation. In this sense, repeated technology audits can be interpreted as a micro-to-meso governance mechanism that supports macro-level impact.

Overall, the paper underlines that the sustainable implementation of applied R&D networks depends on the systematic development of technological capabilities, output-oriented competences, and cooperation structures over time. In this regard, the technology audit provides a useful methodology for strategic steering and long-term governance.

Ethics Declaration: This research did not involve human participants, personal data, medical data or experimental procedures requiring ethical approval. The paper is based on applied research carried out by the authors, literature analysis, previously published research and publicly available or institutionally approved case evidence. Therefore, no formal ethical clearance was required.

AI Declaration: AI-based tools were used to support proofreading and English language refinement, including spelling, grammar and wording corrections. This was done because the authors are not native English speakers. The authors reviewed the final manuscript and take full responsibility for its accuracy, originality and integrity.

References

Bell, Martin; Pavitt, Keith. Accumulating Technological Capability in Developing Countries. The World Bank Economic Review 6 (1) (1992): 257-281.

EARTO. The Economic Footprint of Research and Technology Organizations. Brussels: European Association of Research and Technology Organisations, 2016.

Etzkowitz, Henry; Leydesdorff, Loet. The Dynamics of Innovation: From National Systems and "Mode 2" to a Triple Helix of University-Industry-Government Relations. Research Policy 29 (2) (2000): 109-123.

EURAB. Research and Technology Organisations (RTOs) and the European Research Area. Brussels: European Research Advisory Board, 2005.

Figueiredo, Paulo N. Beyond Technological Catch-Up: An Empirical Investigation of Further Innovative Capability Accumulation Outcomes in Latecomer Firms with Evidence from Brazil. Journal of Engineering and Technology Management 31 (2014): 73-102.

Freeman, Christopher. Technology Policy and Economic Performance: Lessons from Japan. London: Pinter, 1987.

Garcia-Arreola, Javier. Technology Effectiveness Audit Model (TEAM): A Framework for Technology Auditing. Dissertation. Miami, FL: University of Miami, 1996.

Hauschildt, Jürgen; Salomo, Sören; Schultz, Carsten; Kock, Alexander. Innovationsmanagement. 7th ed. Munich: Vahlen, 2023.

Hecklau, Fabian. Technologieaudit zur Bewertung von Forschungs- und Technologieorganisationen. Berlin: Fraunhofer Verlag, 2024.

Hecklau, Fabian; Kidschun, Florian; Kohl, Holger. Technology Audit: Procedure for the Assessment of the Technological Maturity of Applied R&D Organizations. In Proceedings of the 21st European Conference on Research Methodology for Business and Management Studies, 56-65, 2022.

Hecklau, Fabian; Kidschun, Florian; Kohl, Holger; Böhm, Julius. Quantitative Evaluation of Assessment Items of the Technology Audit Method for Research and Technology Organisations (RTOs). In Proceedings of the 22nd European Conference on Research Methodology for Business and Management Studies, 69-76, 2023.

Hecklau, Fabian; Kidschun, Florian; Kohl, Holger; Tominaj, Sokol. Analyzing the Role of Research and Technology Organizations (RTOs) in National Innovation Systems (NIS). In Proceedings of the 16th European Conference on Management, Leadership and Governance, 1-12, 2020.

Hecklau, Fabian; Kidschun, Florian; Will, Markus; Kohl, Holger; Prim, Marcelo Fabricio; Pavim, Alberto Xavier; Oliveira, José Eduardo. Application Example: Assessment of the Technological Maturity of Brazilian Innovation Institutes. In Proceedings of the 14th European Conference on Innovation and Entrepreneurship, 363-371, 2019.

Hecklau, Fabian; Will, Markus; Kidschun, Florian; Kohl, Holger; Pavim, Alberto Xavier; Böhm, Julius Lukas. Technology Audit: Results of the Assessment of the Technological Maturity of Brazilian Innovation Institutes. In Proceedings of the 19th European Conference on Innovation and Entrepreneurship, 2024.

Henderson-Sellers, Brian; Ralyté, Jolita; Ågerfalk, Pär J.; Rossi, Matti. Situational Method Engineering. Berlin: Springer, 2014.

Kohl, Holger; Schubert, Torben; Will, Markus; Hecklau, Fabian; Kidschun, Florian; Darold, Denilton Luiz. What is the Economic Value of Innovation? Macroeconomic Impact Study on the SENAI Innovation Institutes. Berlin: Fraunhofer IPK, 2025. DOI: 10.24406/publica-4902.

Kohl, Holger; Will, Markus; Prim, Marcelo Fabricio; Pavim, Alberto Xavier. Building up a national network of applied R&D institutes in an emerging innovation system. Production, vol. 30, article e20190151, 2020. São Paulo: Associação Brasileira de Engenharia de Produção (ABEPRO). ISSN 1980-5411 (online), 0103-6513 (print). DOI: 10.1590/0103-6513.20190151.

Kuhlmann, Stefan; Holland, Doris. Erfolgsfaktoren der wirtschaftsnahen Forschung. Heidelberg: Physica-Verlag, 1995.
Martinez-Vela, Carlos. Benchmarking Research and Technology Organizations (RTOs): A Comparative Analysis. MIT-IPC Working Paper 16-005. Cambridge, MA: Massachusetts Institute of Technology, 2016.
Mazzoleni, Roberto; Nelson, Richard R. Public Research Institutions and Economic Catch-Up. Research Policy, vol. 36, no. 10, 2007, pp. 1512-1528. Amsterdam: Elsevier. ISSN 0048-7333. DOI: 10.1016/j.respol.2007.06.007.
Mohammad, Aylar Pour; Razaee, Sara; Shayegh, Flora; Torabi, Fashad. A Model for Technological Capability Assessment in R&D Centers. Proceedings of the 14th International Oil, Gas & Petrochemical Congress, 2010.
OECD. Organisation for Economic Co-operation and Development. Public Research Institutions: Mapping Sector Trends. OECD Innovation Strategy. Paris: OECD Publishing, 2011. ISBN 978-92-64-11949-9 (print), 978-92-64-11950-5 (PDF). DOI: 10.1787/9789264119505-en
Phaal, Robert; Farrukh, Clare J.P.; Probert, David R. Technology Management Process Assessment: A Case Study. International Journal of Operations & Production Management 21 (8) (2001): 1116-1132. DOI: 10.1108/EUM0000000005588.
Rush, Howard; Bessant, John; Hobday, Mike. Assessing the Technological Capabilities of Firms: Developing a Policy Tool. R&D Management 37 (3) (2007): 221-236. DOI: 10.1111/j.1467-9310.2007.00471.x.
Schubert, Torben; Darold, Denilton; Will, Markus. Measuring the causal economic effects of scientific research - Evidence from the staggered foundation of the SENAI innovation institutes in Brazil. Socio-Economic Planning Sciences, vol. 101, October 2025, article 102287. Amsterdam: Elsevier. ISSN 0038-0121. DOI: 10.1016/j.seps.2025.102287.
World Intellectual Property Organization (WIPO). Global Innovation Index 2025: Brazil ranking profile. Geneva: WIPO, 2025.

The Role of Artificial Intelligence for Technology Managers in the Logistics Industry

Denis Imhof, Dominik Wörner and Stella Gatziu Grivas
University of Applied Sciences and Arts Northwestern Switzerland FHNW, Switzerland

denis.imhof@fhnw.ch
dominik.woerner@fhnw.ch
stella.gatziugrivas@fhnw.ch

Abstract: The increasing strategic importance of technology has strengthened the role of technology managers (TMs) such as Chief Technology Officers (CTOs), while advances in artificial intelligence (AI) offer new opportunities to support role-specific executive decision-making. However, existing research largely examines AI support from a general strategic management perspective and provides limited insights into TM-specific applications. This study addresses this gap by investigating how TM presence is reflected in practice, which organizational and environmental factors shape the role, which stakeholders are most relevant, and where AI can provide role-specific support. A qualitative research design was employed, involving five semi-structured expert interviews with TMs and related decision-makers from Swiss logistics companies. The interview data were analysed using qualitative content analysis, resulting in a framework linking TM responsibilities, organizational and environmental influences, stakeholder interactions, expected organizational outcomes, and AI-enabled support mechanisms. The findings show that TMs fulfil a hybrid strategic-operational role, acting as an interface between technology, business processes, and stakeholders. Major challenges include information overload, fragmented knowledge, system complexity, technology investment uncertainty, stakeholder coordination, and resistance to change. Furthermore, the findings highlight the critical importance of relationships with supervisors, peers, and employees in shaping technology-related decisions and outcomes. The study identifies several role-specific AI application areas, including knowledge management, technology scouting, decision support, investment evaluation, system transparency, process documentation, and stakeholder communication. AI is perceived not only as a tool for improving efficiency but also as a mechanism for supporting transparency, evidence-based decision-making, organizational alignment, and innovation management. The proposed framework contributes to the technology management and CTO literature by establishing a bridge between technology leadership and AI-supported management. At the same time, it provides practical guidance for organizations seeking to leverage AI to strengthen technology leadership, improve decision quality, and enhance innovation capabilities under conditions of increasing technological complexity and uncertainty.

Keywords: Chief technology officer (CTO), Technology management, Technology strategy, Logistics industry, Artificial intelligence (AI)

1. Introduction

Technology managers (TMs), including Chief Technology Officers (CTOs) (Adler & Ferdows, 1990), face increasingly complex challenges. For example, besides overseeing technology and innovation activities, their responsibilities are to translate technical expertise into business decisions and research & development (R&D) priorities, align technology with strategy, coordinate stakeholders, govern ESG performance and develop digital platforms (Cetindamar & Pala, 2011; Cui et al, 2026; Charden et al, 2026; Garms & Engelen, 2018; van der Hoven et al, 2012; Xiong et al, 2026). While research highlights the potential of Artificial Intelligence (AI) to support top management decision-making (Bevilacqua et al., 2026; Jorzik et al., 2024), little is known about the role of AI in supporting TMs, specifically. The literature review shows that a considerable amount of literature exists discussing the TM role by researching aspects such as the historical development, responsibilities, or challenges, and a separate broader literature on AI-supported strategic management and required skills, but so far almost no direct bridge between them. Considering the strategic importance of the TM role, respectively the highly specialized functional knowledge behind this role, we claim that AI tools should offer also role-specific support, besides the undoubtedly highly valuable general support for strategic managers. This study addresses this gap by examining how the TM role is manifested in practice and identifying areas where AI can provide role-specific support. We thus state the following research questions. How is TM presence currently reflected in practice? What are organizational and environmental aspects challenging TMs? Who are the relevant stakeholders for TMs? What are potential areas for AI-support specific to TM presence? Based on expert interviews from the Swiss logistics industry, the study develops a qualitative framework linking TM responsibilities, challenges, stakeholder interactions, and AI-enabled support mechanisms. Following prior literature, the term TM is used broadly to encompass CTOs and other related managers.

2. Literature Review

2.1 Development of TMs

The TM role emerged in the 1970s and evolved from an R&D focus into a strategy-oriented technology management position when some firms begun using the CTO title for specific senior most technology management functions (Wu et al, 2021; Probert and Tietze, 2009; Adler and Ferdows, 1990). The literature describes the CTO as the most senior executive for R&D related technical matters and outlines activities such as technology coordination across business units, representation of technology in top management, assessment of technological implications in strategic decisions, and management of the external technology environment (Wu et al, 2021; Cetindamar and Pala, 2011; Adler and Ferdows, 1990). Thus, the strategic influence of TMs is particularly pronounced in technology- and R&D-intensive industries, where technological developments are a key competitive factor. Furthermore, influence depends on hierarchical power, and relationships with other executive roles (van der Hoven et al, 2012). Recent work also shows substantial heterogeneity. Some TMs remain deep technical experts, while others become executives shaping innovation strategy across the top management team (Garms and Engelen, 2018).

2.2 Responsibilities of TMs

TMs are responsible for an organization's R&D-related technology agenda, usually spanning product, process, and sometimes as well information technologies, with a stronger company growth and innovation orientation than for example Chief Information Officers (CIOs) (Cetindamar and Pala, 2011; Cui et al, 2026; Wu et al, 2021; Garms and Engelen, 2018; Adler and Ferdows, 1990; Smith, 2003; Xiong et al, 2025). Their focus has become broader besides running R&D alone, because they represent technology in top management and connect technical decisions to firm strategy (Cetindamar and Pala, 2011; Cui et al, 2026; Medcof, 2008). Table 1 provides an overview.

Table 1: Functional foci and responsibilities of TMs

Focus	Responsibilities	Example literature
Technology scanning and enterprise platform	Monitor emerging technologies and competitors' technology portfolios	Cetindamar and Pala, 2011; Cui et al, 2026; Charden et al, 2026; Probert and Tietze, 2009
R&D and project selection	Supervise R&D and choose research projects with business value	Cetindamar and Pala, 2011; Smith 2003; Xiong et al. 2025
Strategy integration	Advise the CEO and TMT, align technology and corporate strategy, prepare business cases	Cetindamar and Pala, 2011; van der Hoven et al, 2012
Cross-unit coordination	Coordinate technology efforts across business units to create synergies and avoid duplication	Cetindamar and Pala, 2011; Wu et al, 2021
External interface	Manage relationships with universities, suppliers, regulators, industry groups, and media	Cetindamar and Pala, 2011; Smith 2003

2.3 Challenges of TMs

TMs face challenges such as getting enough organizational power to influence strategy, translating complex technical expertise into business decisions, adapting priorities under uncertainty, and coordinating many stakeholders (Garms and Engelen, 2018; van der Hoven et al, 2012; Cetindamar and Pala, 2011). TMs are often expected to integrate technology into firm strategy without being given enough strategic influence (Medcof, 2008; Wu et al, 2021; Uttal et al, 1992; Xiong et al, 2026). Strategic influence depends heavily on informal networks, business knowledge, and CEO access (Medcof, 2008; Medcof, 2007; Arendt et al, 2005). The role often gains influence, when firms face stronger adaptation pressure (Bendig et al, 2022). In this case, TMs often must decide what technologies to adopt, discard, fund, and defend (van der Hoven et al, 2012; Medcof and Lee, 2017; Robb, 1994). Those choices are difficult, since besides selecting technology, the role needs to deal with due diligence, ESG requirements, external partnerships, and culture building all at once under high pressure (Cui et al, 2026; Smith, 2003; Medcof and Lee, 2017). Thus, TM effectiveness depends on relationships, trust, communication and knowledge exchange with Chief Executive Officers (CEO) and other executives (Smith, 2003; Zhen et al, 2012; Cetindamar and Pala, 2011; Xiong et al, 2021). Challenges are therefore less about executing basic tasks but about securing and sustaining enough influence, credibility, and relationships to fulfil responsibilities.

2.4 The Role of AI

While the literature discusses the responsibilities of TMs and practical challenges rather clearly, it does not sufficiently study AI as a tool for TMs specifically. AI support is studied for strategic top managers in general, emphasizing valuable aspects such as mindsets, capabilities, decision support, AI literacy, AI governance, and organizational redesign (e.g., Bevilacqua et al, 2025; Bevilacqua et al, 2026; Jorzik et al, 2023). Thus, the literature discusses how top executives use or are enabled to use AI in broad terms, leaving the TM role intersection mostly unexplored. This gap persists because literature is rather focused on skills and the role itself (Gu et al, 2024; van der Hoven et al, 2012; Hartley, 2011; Medcof, 2008). As discussed above, role effectiveness depends heavily on structural power, CEO trust, and the ability to translate technology into strategic R&D activities with business value. Thus, research should consider studying not only AI support for top managers in general but for TM in particular. Also, TM work is contingent on industry technology intensity, company size, innovation exposure, and relationships with other executives, so AI support will likely vary sharply across contexts rather than generalize cleanly.

3. Research Methods

The study follows a qualitative approach employing five semi-structured expert interviews. A qualitative approach is particularly suitable for exploring under-researched phenomena, capturing rich contextual insights, and understanding complex socio-technical dynamics (Myers, 2013; Walsham, 2006).

3.1 Research Design and Sampling

As discussed above, the existence and responsibilities of the TM role is dependent on various factors. We focus on companies in the logistics industry, to ensure that industry-specific differentiating factors such as R&D intensity are equalized. Purposive sampling was employed to select cases, ensuring that participants possess relevant expertise in technology management (Patton, 2015). Table 2 lists the interview experts. To protect the privacy of the participants, names and companies have been anonymized. All experts occupy management positions either in the top management or in the middle management and are considered key informants with substantial domain knowledge.

Table 2: Selected interview experts

Nr.	Function	Industry	Date
Expert 1	Chief Executive Officer (CEO) and Chief Technology Officer (CTO)	Logistics	November 2025
Expert 2	Head of IT and Processes	Logistics	November 2025
Expert 3	Project Manager	Logistics	November 2025
Expert 4	Partner Logistics and Innovation	Logistics	November 2025
Expert 5	Head of IT	Logistics	November 2025

3.2 Data Collection

An interview guide with 24 questions in four topic categories was created, based on previous literature (e.g., Cetindamar and Pala, 2011; Cui et al, 2026; Gu et al, 2024). The same guide was used for all interviews, to ensure comparability of responses while allowing for follow-up questions. Example questions include “What are your typical jobs-to-be-done?”, “What are innovation barriers?”, “Where do see the potential for AI in your industry?”. All interviews were conducted via Microsoft Teams after prior appointment and were acoustically recorded and automatically transcribed with the consent of the interviewees. The interviews lasted on an average 45 minutes. The transcripts were then revised manually to ensure accuracy and completeness (Poland, 1995), In addition, extensive field notes were taken during the interviews.

3.3 Data Analysis

The interview analysis followed a qualitative content analysis approach. Initially, the transcripts were deductively coded according to the 14 predefined topic categories based on previous literature. Subsequentially,

emergent themes identified were integrated into the coding framework, and the transcripts were inductively coded in a second run to identify unexpected insights. The coding was performed by two researchers independently. Differences in coding were discussed and resolved through consensus, following recommendations for inter-coder agreement in qualitative research (Campbell et al, 2013). The coded data was then analysed and compared with the field notes to ensure coherence and robustness of interpretations. The synthesis led to eight main constructs, as described in more detail in the next section.

4. Findings

Figure 1 shows the framework which emerged based on the content analysis. The framework depicts TM presence in an organization (solid arrows) and is extended by how and where AI tools can support TMs (dotted arrows).

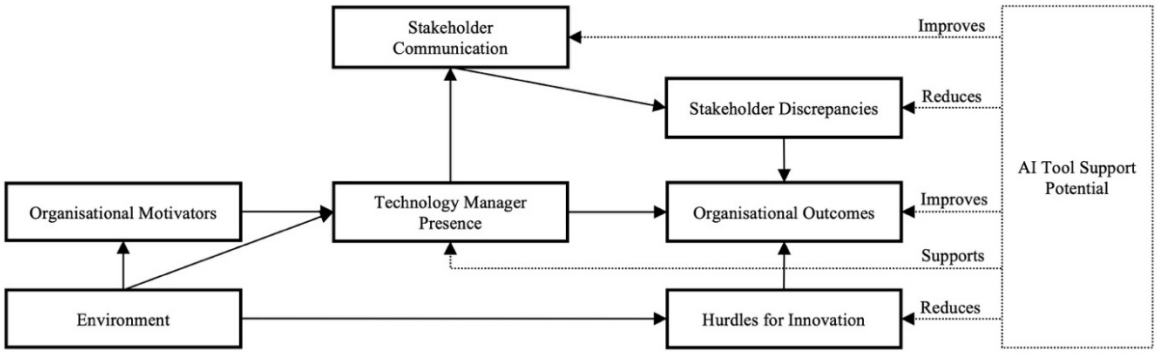


Figure 1: TM presence extended by the role of AI

The following sections summarize the key findings of the interviews regarding TM presence, stakeholder interactions, organizational influences, and AI-enabled support mechanisms. Representative quotations are provided.

4.1 TM Presence

4.1.1 Organizational motivators for appointing a TM

The introduction of the TM role is driven by organizational and environmental factors. Interviewees emphasized the need for specialized expertise that goes beyond the skills of a generalist to accelerate projects, anticipate and evaluate technologies, and support digital transformation. In addition to improving efficiency and resource allocation, the role is intended to help break down outdated patterns and keep track of rapid technological change in order to keep the organization competitive. As such, TMs are expected to provide an independent strategic perspective on technology investments and innovation opportunities. As one expert noted, “it is the bird’s eye view which the TM has” (Expert 5). This requires a clear focus on distinguishing between useful and non-useful technologies to optimize resource allocation. Furthermore, digital technologies and data were perceived as important contributors to competitiveness, innovation, and employer attractiveness.

4.1.2 Expected outcomes of appointing a TM

Interviewees associated the TM role primarily with efficiency gains, faster project execution, process optimization, and improved competitiveness. An internal TM is perceived as a stronger driver than external consultants, as they can exert direct pressure to finalize and implement projects in a timely manner. Additional expected outcomes included higher employer attractiveness, since modern technology tools or manufacturing techniques are considered crucial for increasing the company’s attractiveness on the labour market. Further, increased digitalization, and the strategic use of data are mentioned. Rather than pursuing innovation in all areas, targeted innovation focused on core business processes and technologies that generate measurable business value is emphasized. This selective innovation strategy is intended to ensure that resources are used efficiently.

4.1.3 Hurdles for innovation

The introduction of innovative IT solutions in the logistics industry is hampered by a complex interplay of social, economic and structural barriers. A key factor is resistance to change. One expert stated, “it is resistance to change, I think, which makes innovation difficult” (Expert 1). Several experts emphasize the need to build

acceptance and actively involve knowledge carriers to overcome resistance. In addition to the internal dimension, customer acceptance is also cited as a critical success factor, as expectations for stability and reliability are particularly high in the logistics industry. Companies also face the challenge of not overwhelming customers and employees, which slows down the introduction of disruptive technologies. Economic aspects reinforce these barriers. Justifying high investments in innovative technologies is difficult for the experts, especially when the benefits are uncertain and budgets are limited. One expert stated, "if you really want to implement big innovations with high financial outlay, that is really difficult to justify to the board of directors, to the client" (Expert 3). Added to this is the challenge of choosing the right technologies to avoid disinvestments and dependencies on new systems. This uncertainty is exacerbated by the industry's strong customer focus. Innovations often depend on specific customer requirements. Furthermore, application contexts make it difficult to scale innovations. The suitability of new solutions varies depending on the type of goods transported (e.g., general cargo vs. full truckload), company size and departmental requirements.

4.2 Relevant Stakeholders of TMs

4.2.1 Interactions between TMs and supervisors

Relationships between TMs and supervisors are characterized by direct communication, short decision paths, and limited bureaucracy. In most cases TMs report directly to, or are part of the top management, and participate in strategic discussions. In cases where the TM is also the managing director, this creates a direct link between operational responsibility and strategic control. An example from an interview expert shows that management takes on a dual role. Around 70 percent of work involves operational problem-solving, while 30 percent of its activities are strategic in nature. Particularly in SMEs, decision-making is strongly influenced by owners' and executives' attitudes toward innovation, while flat hierarchies facilitate the implementation of technology initiatives. In addition, the existence of competence matrices is mentioned, which define clear responsibilities and structure decision-making powers.

4.2.2 Interactions between TMs and peers

Cooperation with peers is generally characterized by regular communication and collaborative decision-making. While operational managers are actively involved in technology-related discussions, interviewees noted that operational digitalization perspectives are not always sufficiently integrated into transformation initiatives. In addition, the matrix organization is cited as a structural feature that clarifies responsibilities and supports cooperation.

4.2.3 Interactions between TMs and subordinates

Cooperation between TMs and employees is strongly based on trust, participation, and transparent communication. One expert stated, "the essential part is to take the employees along the journey and provide them with the opportunity to have similar experiences when it comes to building trust" (Expert 1). Interviewees emphasized the importance of involving employees in decision-making and solution development. Interaction is often bilateral, which allows for flexible coordination but also carries the risk that individual employees may feel overlooked, especially when new solutions are introduced. Communication is highly problem-oriented, with the focus more on combating symptoms than analysing causes. This points to an operational orientation that sometimes neglects strategic perspectives. This cooperative culture facilitates problem solving but requires greater integration of strategic approaches to ensure long-term improvements.

4.3 Potential of AI-based Tools

The interviews identify four primary areas in which AI can support TMs: knowledge management, system transparency, decision support, and documentation. Overall, AI is perceived as a mechanism for improving organizational outcomes, stakeholder communication, and innovation management. First, AI was described as a knowledge aggregator capable of consolidating fragmented information and supporting both operational and strategic decision-making. One interviewee explained, AI should help "to consolidate the entire data flow and make it more transparent" (Expert 2). Beyond supporting operational tasks, AI was considered valuable for trend monitoring, technology evaluation, and investment preparation. Second, AI can enhance system transparency and integration by consolidating and visualizing information about heterogeneous systems, interfaces, updates, and dependencies. Experts emphasized the importance of predictive monitoring, bottleneck identification, and the creation of a single source of organizational knowledge. As one expert stated, there is a need for "something like a clever data base, a knowledge base, where I can go, which really supports me, and where I can ideally tell it in advance what I want" (Expert 3). Such capabilities enable more proactive technology management and

support organizational transparency. Third, decision support emerged as a key application area. Interviewees emphasized AI's potential to support both operational and strategic decisions by providing cost-benefit analyses, evaluating data availability, assessing organizational impact, and generating innovation proposals based on predefined constraints such as budgets or strategic priorities. One expert remarked, "I would like a tool that maps out the entire system landscape and suggests improvements" (Expert 4). AI was therefore viewed as a means of reducing investment uncertainty while improving transparency and stakeholder acceptance. Fourth, AI can reduce administrative burdens through automated documentation, process visualization, project tracking, and multilingual support. These capabilities can improve consistency, organizational coordination, and communication between technical and non-technical stakeholders. Finally, the findings suggest that AI can strengthen technology investment decisions by systematically aggregating internal and external information, analysing costs, benefits, risks, and data requirements, and supporting evidence-based evaluations. Since investment decisions are typically driven by expected efficiency gains, cost reductions, and business value, AI can improve both the quality and transparency of these decisions. Overall, the interviews indicate that AI functions not merely as an efficiency-enhancing tool but as a strategic support mechanism that improves transparency, decision quality, stakeholder alignment, and innovation management.

5. Discussion

The findings show that TMs in the Swiss logistics industry occupy a hybrid strategic-operational role that integrates technology, business processes, and stakeholders. Consistent with prior research, TMs act between technological and business domains (Cetindamar & Pala, 2011; Medcof, 2008; Wu et al., 2021), while also maintaining significant operational responsibilities. The study confirms that uncertainty, technology evaluation, stakeholder coordination, and organizational complexity remain central challenges (Garms & Engelen, 2018; van der Hoven et al., 2012; Smith, 2003). The findings reinforce the importance of stakeholder relationships, trust, and communication for TM effectiveness (Medcof, 2008; Smith, 2003; Zhen et al., 2012). Extending the literature on AI-supported management (Bevilacqua et al., 2025; Bevilacqua et al., 2026; Jorzik et al., 2024), the findings identify role-specific AI application areas that support decision-making, transparency, communication, and innovation management.

5.1 Implications for Theory and Practice

This study bridges TM research and AI-supported strategic management. While prior studies have examined TM responsibilities and influence (Adler & Ferdows, 1990; Cetindamar & Pala, 2011; Medcof, 2008), the findings show how AI can support role-specific challenges such as information overload, system complexity, stakeholder coordination, and investment uncertainty. The results suggest that AI functions as a strategic support mechanism rather than merely an automation tool. By enhancing knowledge aggregation, transparency, decision support, and stakeholder communication, AI can strengthen the credibility, influence, and effectiveness of TMs. The findings further indicate that the value of AI is highly role-specific, particularly in areas such as technology scouting, system integration, investment evaluation, innovation management, and communication. Since many barriers to innovation are social and organizational, AI can also facilitate stakeholder alignment and change management. For practice, organizations should leverage AI to support strategic decision-making, technology evaluation, and communication while recognizing that AI complements rather than replaces human capabilities. Effective technology leadership continues to depend on communication skills, industry expertise, strategic judgment, and relationship management. Accordingly, investments in AI should be accompanied by AI literacy, data governance, and managerial capability development. Overall, AI emerges as a role-specific augmentation mechanism that enables TMs to better manage complexity, support innovation, and align technology with business objectives.

5.2 Limitations and Future Research

This study provides exploratory insights based on five expert interviews from the Swiss logistics industry and is therefore not statistically generalizable (Myers, 2013; Walsham, 2006). While the industry-specific focus improves contextual comparability, the findings may not fully transfer to other industries (van der Hoven et al., 2012; Wu et al., 2021). Furthermore, the study relies on expert perceptions and examines the perceived potential of AI rather than the actual implementation and performance effects. These limitations offer opportunities for future research. Given that TM responsibilities and influence vary across industries, organizational sizes, and innovation contexts (van der Hoven et al., 2012; Garms & Engelen, 2018; Wu et al., 2021), future studies could validate the findings in other technology-intensive sectors such as manufacturing, biomedical, or pharmaceutical industries. In addition, further research could examine whether AI-supported analyses, visualizations, and decision-support mechanisms translate into greater strategic influence, legitimacy,

and participation of TMs in top management decision-making (Medcof, 2008; Smith, 2003; Zhen et al., 2012). Finally, longitudinal studies could investigate how AI affects the TM role over time, particularly as the role continues to develop from a primarily technical and R&D-oriented function towards a broader strategic and innovation-focused leadership position (Adler & Ferdows, 1990; Probert & Tietze, 2009; Wu et al., 2021).

6. Conclusion

This study explored the role of TMs in the Swiss logistics industry and the potential of AI to support their responsibilities, stakeholder interactions, and organizational influence. Based on five expert interviews, a qualitative framework was developed linking TM presence, contextual influences, stakeholder relationships, and AI support mechanisms. The findings show that TMs occupy a hybrid strategic-operational role, acting as a bridge between technology and business. Their effectiveness is shaped by technological complexity, stakeholder relationships, investment uncertainty, and barriers to innovation. The study further identifies several role-specific AI application areas, including knowledge management, technology evaluation, system integration, documentation, stakeholder communication, and decision support. Overall, the findings suggest that AI creates value not only through efficiency gains but also by enhancing transparency, evidence-based decision-making, and stakeholder alignment. The proposed framework provides a foundation for future research on AI-supported technology management and technology leadership.

Ethics Declaration and conflicts of interests: This work was funded by the Swiss Innovation Agency (Innosuisse) grant nr. 131.667 INNO-ICT.

AI Declaration: Generative AI tools (Microsoft Copilot and Consensus App) were used during manuscript preparation to assist with language editing, text refinement, and literature management. AI-generated content served exclusively as a support tool and was subject to critical review and revision by the authors. All substantive intellectual contributions, including study conception, literature analysis, methodological design, data collection and analysis, interpretation of results, and conclusions, were performed by the authors, who assume full responsibility for the final manuscript.

References

Adler, P.S. and Ferdows, K. (1990) "The Chief Technology Officer", *California Management Review*, Vol. 32, No. 3, pp 55–62. https://doi.org/10.2307/41166617

Arendt, L.A., Priem, R.L. and Ndofor, H.A. (2005) "A CEO-adviser Model of Strategic Decision Making", *Journal of Management*, Vol. 1, No. 5, pp 680–699. https://doi.org/10.1177/0149206305279054

Bendig, D., Wagner, R., Jung, C. and Nüesch, S. (2022) "When and Why Technology Leadership Enters the C-Suite: An Antecedents Perspective on CIO Presence", *Journal of Strategic Information Systems*, Vol. 31, No. 1. https://doi.org/10.1016/j.jsis.2022.101705

Bevilacqua, S., Ferraris, A., Matzler, K. and Kuděj, M. (2026) "Strategic Leadership at High Altitude: Investigating How AI Affects the Required Skills of Top Managers", *Journal of Business Research*, Vol. 205. https://doi.org/10.1016/j.jbusres.2025.115878

Bevilacqua, S., Masárová, J., Perotti, F.A. and Ferraris, A. (2025) "Enhancing top managers' leadership with artificial intelligence: insights from a systematic literature review", *Review of Managerial Science*, Vol. 19, pp 2899–2935. https:/ /doi.org/10.1007/s11846-025-00836-7

Campbell, J.L., Quincy, C., Osserman, J. and Pedersen, O.K. (2013) "Coding In-depth Semistructured Interviews: Problems of Unitization and Intercoder Reliability and Agreement", *Sociological Methods & Research*, Vol. 42, No. 3, pp 294–320. https://doi.org/10.1177/0049124113500475

Cetindamar, D., Pala, O. (2011) "Chief Technology Officer Roles and Performance. *Technology Analysis & Strategic Management*, Vol. 23, No.10, pp 1031–1046. https://doi.org/10.1080/09537325.2011.621297

Chacko, G.K. (1999) "Chief Technology Officers (CTOs) in Historic Survival Decisions of Countries and Corporations", *Technology Forecasting and Social Change*, Vol. 62, No. 1–2, pp 41–50. https://doi.org/10.1016/S0040-1625(99)00063-3

Charoen, D., Li, G., & Khern-am-nuai, W. (2026). Preparing Technology Managers for the Postconsumer Reviews Era. *IEEE Engineering Management Review,* Vol. 54, No. 2, 14–20. https://doi.org/10.1109/EMR.2025.3622421

Christofi, M. (2024) "The Role of Chief Digital Officer: Critical Insights into an Emerging Field and Road Map for Future Research", *Journal of Business Research*, Vol. 172. https://doi.org/10.1016/j.jbusres.2023.114390

Chun, M. and Mooney, J. (2009) "CIO roles and responsibilities: Twenty-five years of evolution and change", *Information & Management*, Vol. 46, No. 6, pp 323–334. https://doi.org/10.1016/j.im.2009.05.005

Cui, X., Qi, L., Wang, M., Liu, J. and Du, X. (2026). Building Sustainability: The Role of Technology Leader in ESG Performance in the Construction Industry. *Business Strategy and the Environment 35*, Vol. 6, pp 8448–8472. https://doi.org/10.1002/bse.70590.

Firk, S., Hanelt, A., Oehmichen, J. and Wolff, M. (2021) "Chief Digital Officers: An Analysis of the Presence of a Centralized Digital Transformation Role", *Journal of Management Studies*, Vol. 58, No. 7, pp 1800–1831. https://doi.org/10.1111/joms.12718

Garms, F.P. and Engelen, A. (2019) "Innovation and R&D in the Upper Echelons: The Association between the CTO's Power Depth and Breadth and the TMT's Commitment to Innovation", *Journal of Production Innovation Management*, Vol. 36, No. 1, pp 87–106. https://doi.org/10.1111/jpim.12441

Gu, Y., Wang, L. and Mai, Y. (2024) "Do You Need a Chief Technology Officer? The Effect of Appointing a CTO on Innovation Activities in High-Tech New Ventures", *Journal of Production Innovation Management*, Vol. 41, No. 6, pp 1118–1140. https://doi.org/10.1111/jpim.12749

Hartley, S. (2011) "The Effectiveness of the Chief Technology Officer", *Research-Technology Management*, Vol. 54, No. 3, pp 28–35. https://doi.org/10.5437/08953608X5403006

Lorenz, F. and Buchwald, A. (2023) "A Perfect Match or an Arranged Marriage? How Chief Digital Officers and Chief Information Officers Perceive Their Relationship: A Dyadic Research Design", *European Journal of Information Systems*, Vol. 32, No. 3, pp 372–389. https://doi.org/10.1080/0960085X.2023.2178742

Jorzik, P., Yigit, A., Kanbach, D.K., Kraus, S. and Dabić, M. (2024) "Artificial Intelligence-Enabled Business Model Innovation: Competencies and Roles of Top Management", *IEEE Transactions on Engineering Management*, Vol. 71, pp 7044–7056. https://doi.org/10.1109/TEM.2023.3275643

Medcof, J.W. (2007) "CTO Power", *Research-Technology Management*, Vol. 50, No. 4, pp 23–31. https://doi.org/10.1080/08956308.2007.11657448

Medcof, J.W. (2008) "The organizational influence of the Chief Technology Officer", *R&D Management*, Vol. 38, No. 4, pp 406–420. https://doi.org/10.1111/j.1467-9310.2008.00526.x

Medcof, J.W. and Lee, T. (2017). "The Effects of the Chief Technology Officer and Firm and Industry R&D Intensity on Organizational Performance", *R&D Management*, Vol. 47, No. 5, pp 767–781. https://doi.org/10.1111/radm.12275

Meyers, M.D. (2009) *Qualitative Research in Business and Management*. Sage Publications, London. https://doi.org/10.4135/9781036208417

Patton, M.Q. (2015) *Qualitative Research and Evaluation Methods*. Sage Publications, Thousand Oaks.

Poland, B.D. (1995) "Transcription Quality as an Aspect of Rigor in Qualitative Research", *Qualitative Inquiry*, Vol. 1, No. 3, pp 290–310. https://doi.org/10.1177/107780049500100302

Probert, D. and Tietze, F. (2009) "Open Innovation and the CTO", *Creativity and Innovation Management*, Vol. 18, No. 4, pp 335–337. https://doi.org/10.1111/j.1467-8691.2009.00543.x

Robb, W.L. (1994) "Selling technology to your CEO", *Research-Technology Management*, Vol. 37, No. 5, pp 43–45. https://doi.org/10.1080/08956308.1994.11683584

Roberts, E.B. (2001) "Benchmarking Global Strategic Management of Technology", *Research-Technology Management*, Vol. 44, No. 2, pp 25–36. https://www.jstor.org/stable/24133852

Smith, R.D. (2003) "The Chief Technology Officer: Strategic Responsibilities and Relationships", *Research-Technology Management*, Vol. 46, No. 4, pp 28–36. https://doi.org/10.1080/08956308.2003.11671574

Uttal, B., Kantrow, A., Linden, L.H. and Stock, S. (1992) "Building R&D Leadership and Credibility", *Research-Technology Management*, Vol. 35, pp 15–24. https://doi.org/10.1080/08956308.1992.11670817

van der Hoven, C., Probert, D., Phaal, R. and Goffin, K. (2012) "Dynamic Technology Leadership: The Adaptive Role of the CTO", *Research-Technology Management*, Vol. 55, No. 5, pp 24–33. https://doi.org/10.5437/08956308X5505073

Walsham, G. (2006) "Doing interpretive research", *European Journal of Information Systems*, Vol. 15, Nr. 3, pp 320–330. https://doi.org/10.1057/palgrave.ejis.3000589

Wu, Q., Dbouk, W., Hasan, I., Kobeissi, N. and Zheng, L. (2021) "Does Gender Affect Innovation? Evidence from Female Chief Technology Officers", *Research Policy*, Vol. 50, No. 9. https://doi.org/10.1016/j.respol.2021.104327

Xiong, C., Zheng, L.J., Germon, R., Susini, J.P. and Chang, V. (2021) "Telling "White Lies" Within the Entrepreneurial Firm: How Rationalized Knowledge Hiding Between Founder CEO and Founder CTO Influences New Product Development", *Journal of Business Research*, Vol. 136, pp 431–439. https://doi.org/10.1016/j.jbusres.2021.07.039

Xiong, M., Xu, H., Ji, J., Zuo, R., Wang, Y. and Olya, H. (2026). Responsible Artificial Intelligence Attention and Firm Innovation: An Attention-Based View. *Journal of Product Innovation Management,* Vol. 43, No. 1, pp 186–214. https://doi.org/10.1111/jpim.70015.

Zhen, T., Xuan, Y. and Jing, Z. (2012) "Trusting Relationships of CTO-CEO and CTO's Participation in Technology Strategy: Based on Empirical Study of Chinese High-Tech Firms", *Chinese Management Studies*, Vol. 6, No. 1, pp 137–159. https://doi.org/10.1108/17506141211213889

A Study of Dynamic Capabilities for Digital Transformation Among Top Rated Norwegian Law Firms

Johanna Viola Jacobsen and Fred Strønen
OsloMet University, Oslo Business School, Norway

FredSt@OsloMet.no

Abstract: Digital technologies are reshaping knowledge work, yet the organizational capabilities that enable digital transformation in traditional law firms remain unclear. We report findings from a multiple-case study of six of Norway's 25 largest business law firms. The theoretical framework of dynamic capabilities is used as a theoretical lens to analyze and reflect upon the current status and the potential for future development. The six dimensions used to analyze the data in this study are Strategy and Ecosystem, Innovation, Technology, Operations, Organizational Design, and at last Leadership and Culture. Interesting insights is how digital transformation is adopted as well as how artificial intelligence is handled in the top leading law firms in Norway. The special characteristics of professional service firms are also taken account of in order to capture the operating logic of the top-notch law firms. The business model based on hourly billing with lack of external owners, and strong institutional norms make law firms stand out as the archetype of professional business firm where knowledge is the key production factor. This qualitative case study is based on six expert interviews conducted in the six largest business law firms in Norway, from informants who are leaders with special responsibility or insight into the areas of digitalization and artificial intelligence. What we discover is how technology is a major change driver, but the law firms analyzed face persistent barriers such as time constraints, low user adoption, and weak incentives. The findings include enabling capabilities—willingness to invest, efficient core processes, and deliberate efforts to build a digital culture. Areas requiring further development include collaboration across value networks, systematic innovation practices, user adoption at scale, and incentive design aligned with transformation goals. The study identifies critical capabilities that enable digital transformation in business law firms and offers practical implications and guidance for leaders seeking to accelerate progress.

Keywords: Digital transformation, Law firms, Dynamic capabilities

1. Introduction

Considering the rapid development of information technology and generative AI, an increasing number of questions have emerged regarding the future of knowledge work and the sustainability of existing business models in professional service firms (Løwendahl, 2009). Business law firms have traditionally been regarded as conservative organizations that are resistant to change. However, several scholars argue that the traditional law firm is approaching a crossroads (Kronblad, 2020; Schmidt, 2023), as digital technologies increasingly challenge established ways of creating and capturing value. New technologies offer opportunities to streamline knowledge-intensive work and enable new business models (Breunig & Skjølsvik, 2017; Chanias et al., 2019; Pemer, 2020), while simultaneously creating pressure on firms whose competitive advantage has historically rested on specialized expertise and labor-intensive service delivery. The potential magnitude of this disruption is substantial. McKinsey estimates that 20-25% of all working hours in Denmark could be automated using existing technologies (McKinsey, 2019). While generative AI is expected to play a complementary role in many industries, its impact on legal work may be particularly disruptive (Christensen et al., 2013; Dipshan, 2023). Goldman Sachs estimates that as much as 44% of legal tasks in the United States could be automated (Dipshan, 2023). Although such changes have not yet fully materialized in Norwegian business law firms, many firms have initiated digitalization and AI-related transformation efforts in response to these developments. Digital transformation refers to the fundamental organizational changes driven by digital technologies that reshape strategic decisions, business logic, and organizational processes (Schneider et al., 2023). Prior research demonstrates that successful digital transformation can be a source of competitive advantage (Gurumurthy et al., 2020; Klos et al., 2023; Konopik et al., 2022; Warner & Wäger, 2019). At the same time, digital transformation is particularly challenging for established organizations because existing structures, routines, and business models may inhibit change (Warner & Wäger, 2019). Consequently, an extensive body of literature has sought to identify the organizational capabilities that support successful digital transformation (Karimi & Walter, 2015; Soluk & Kammerlander, 2020; Warner & Wäger, 2019). However, despite this growing body of research, important gaps remain. Existing studies on digital transformation capabilities have largely focused on established firms in general, manufacturing firms, or technology-intensive industries. Comparatively little attention has been paid to professional service firms, and particularly to business law firms, whose partnership structures, professional norms, and reliance on expert knowledge make them a distinctive organizational context. As a result, limited empirical knowledge exists regarding which organizational capabilities are mobilized and developed when business law firms pursue digital transformation.

This gap is especially significant given the increasing transformative potential of generative AI for legal services and the strategic challenges currently facing the legal sector. To address this gap, this study asks: Which organizational capabilities are expressed when business law firms undergo digital transformation? The study provides an empirical contribution based on expert interviews with six senior leaders from six leading Norwegian business law firms selected from the country's top-tier firms (Schmidt, 2023). All informants hold leadership positions and possess direct insight into their firms' strategic digitalization initiatives. The firms studied operate according to a traditional partnership model and primarily rely on hourly billing, making them particularly relevant cases for understanding how established professional service firms respond to digital transformation.

1.1 Digital Transformation

Digital transformation is about how organizations utilize digital technologies to change the current state and develop new business models, business processes, capabilities, products, and services to create value (Bharadwaj et al., 2013; Fitzgerald et al., 2014, p. 2; Verhoef et al., 2021). Digital transformation lacks a clear definition (Osmundsen, 2020, p. 1; Vial, 2019; Verhoef et al., 2021). Liu et al. (2011) argue that digital transformation is "an organizational transformation that integrates digital technologies and business processes in a digital economy." Digital transformation is about more than just the emergence of digital technologies. Digital transformation is particularly used to describe the general and larger changes organizations undergo in the technological age (Osmundsen, 2020) and should be distinguished from other related concepts such as digitalization and digital innovation (Plekhanov et al., 2023, p. 823; Vial, 2019; Osmundsen, 2020). While digitalization is about utilizing digital technologies to improve existing processes (Vial, 2019). However, Vial (2019) provides a definition we will use: “Digital transformation is a process that seeks to improve an organization by triggering significant changes in its characteristics through combinations of information, computing, communication, and connectivity technologies” (Vial, 2019, p. 121).

The emergence and adoption of information technology make professional service firms particularly vulnerable to digital transformation in the coming years (Chanias et al., 2019; Kronblad, 2020; Pemer, 2020). Despite the pervasive power of digital transformation, professional service firms, however, appear largely to have escaped the predicted disruption (Christensen et al., 2013). It is argued that dominant logic and strong industry norms have prevented digital innovation among law firms (Christensen et al., 2013; Thornton et al., 2012; Kronblad, 2020; Kronblad et al., 2023). It is necessary to highlight the distinctive characteristics in law firms, as well as drivers and barriers to change.

1.2 Professional Service Firms - Knowledge as the Competitive Weapon

Professional service firms (PSFs) in general and law firms in particular, have their distinctive characteristics been subject of several studies (Løwendahl, 2009; Von Nordenflycht, 2010; Kronblad, 2021). Law firms are often characterized as pure PSFs, and Von Nordenflycht (2010) identifies three specific characteristics of PSFs: high knowledge intensity, low capital intensity, and professionalized workers. High knowledge intensity means that value is generated by the intellectual capital possessed by the lawyers within the firm (Von Nordenflycht, 2010; Kronblad, 2021, p. 9). The business model is based on employees' knowledge as the primary source of revenue, and law firms are recognized by low capital intensity (Von Nordenflycht, 2010; Kronblad, 2021). As a result, law firms are largely organized as professional partnerships, where highly trained individuals provide expert advice to clients based on hourly billing (Kronblad et al., 2023, p. 219).

1.3 Technology as a Driver for Change

Law firms operate in increasingly digital contexts and are progressively exposed to new technologies and practices (Susskind & Susskind, 2015). Legal tech is used as a collective term for the adoption and use of information and communication technology (Aabakken et al., 2023, p. 6). Technological development through legal tech creates new demands from clients, and market forces are drivers for change (Rodgers et al., 2023, p. 311). There is broad agreement that technological advancements have driven changes in the work processes of knowledge workers (Kronblad et al., 2023; Christensen et al., 2013; Susskind & Susskind, 2015). Rodgers et al. (2023) explore the impact of technology on law firms and find that although the predicted disruption of PSFs (Christensen et al., 2013) and traditional law firms have not yet materialized, legal tech has already made its entrance and streamlined the industry.

Digital tools and legal tech of various kinds generally play a significant role in today's legal advisory services (Kronblad et al., 2023, p. 220). At an overarching level, information and communication technology such as email and internet searches are highly relevant legal tech. The same applies to the use of digital platforms for collaboration with clients and developing better customer experiences (Kronblad et al., 2023, p. 220). Rodgers (2023) points out that the use of generic technology such as computers, the internet, cloud computing, video conferencing tools, and similar solutions provided by Microsoft is very widespread (Rodgers et al., 2023). The use of more legal-specific IT for storage, knowledge management, and billing is common (Rodgers et al., 2023, p. 303). A widely used software is iManage and its system for document management and email (Rodgers, 2023, p. 303).

When it comes to AI-driven legal tech, its use is still at a relatively early stage. Machine learning and artificial intelligence are mainly applied in connection with due diligence and contract review (Rodgers et al., 2023, p. 303). However, generative AI, particularly following the launch of the language model ChatGPT, is highlighted as potentially disruptive technology that will radically change the legal industry in the coming years (Hadfield & Koh, 2025; Schmidt, 2023). This is illustrated through legal tech providers' increasingly extensive implementation of AI in existing legal tech and adoption of language models in law firms.

1.4 Dynamic Capabilities as an Analytical Lens

Digital transformation in our society introduces a new reality, and the question of competitive business operations appears increasingly complex (Gong & Ribiere, 2021; Vial, 2019). Digital transformation is dynamic in nature (Chanias et al., 2023), and the subsequent change requires that organizations are aware of their resources and capabilities (Ellström et al., 2022). Dynamic capabilities (Teece et al., 1997) provide a suitable theoretical lens for studying this phenomenon (Warner & Wäger, 2019; Konopik et al., 2022; Schneider et al., 2023; Karimi & Walter, 2015). Teece et al. (1997) define dynamic capabilities as "higher-level skills that determine a firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (p. 516). The definition has been central to the development of dynamic capabilities theory and is repeated in most works in the field, thus guiding the further presentation in this study.

1.5 Dynamic Capabilities for Digital Transformation

In line with the ongoing relevance of digital transformation, an increasing number of empirical and literary studies have analyzed digital transformation through the lens of dynamic capabilities (Warner & Wäger, 2019, Ellström et al., 2022; Soluk & Kammerlander, 2020; Jantunen et al., 2012). Several studies argue that organizations that are more dedicated and have an active approach to which organizational capabilities should be developed are more successful in digital transformation processes (Breznik & Lahovnik, 2016; Warner & Wäger, 2019; Teece, 2007; Konopik et al., 2022). Konopik et al. (2022) identify a total of six overarching themes of organizational capabilities that prove central to digital transformation and create a roadmap to guide organizations facing digital transformation. Dynamic capabilities build on organizational capabilities, and the digital transformation process can be seen as a sequence of sensing changes in the environment, seizing opportunities, and transforming the resource base (Mele et al. 2023; Soluk & Kammerlander 2020; Konpik et al. 2022). During a digital transformation process, the need for organizational capabilities shifts. The relevance of different capabilities will vary depending on where in the process the organization is situated (Konopik et al., 2022, p. 6).

The six analytical dimensions developed by Konopik et al 2022 are presented below:

1. Strategy and ecosystem: Strategy forms the foundation for how organizations operate. In the context of digital transformation, key capabilities in the category of strategy and ecosystem are related to how the business model can be adopted to the new opportunities (Verhoef et al., 2021), while sustaining relationships with key partners (Konopik et al., 2022, p. 6).
2. Innovation: Mastering digital transformation requires the ability to capture external information so that strategic choices and innovative projects are based on informed decisions. Capabilities to dedicate disruptive technology, social, and business opportunities in the environment, alongside the ability to map what will drive future customer needs (Konopik, 2022, p. 9; Feroz et al., 2023, p. 8). Innovative abilities are particularly relevant early in the digital transformation process, and Konopik et al. (2022) find that the sensing mechanism (Teece, 2007) has the highest relevance for innovation capabilities.

3. Technology: Digital transformation arises as new technology that affects business models and operations. Possessing technological capabilities entails organizations' abilities to monitor and understand disruptive technology circulating in the market (Osmundsen, 2020) to maintain competitiveness. This implicitly suggests that technological capabilities should be developed from the early stages of the process. Konopik et al. (2022) point out that capabilities associated with the sensing mechanism are most relevant for technological capabilities.
4. Operations: Where technological capabilities ensure the organization's ability to explore and adopt new technology, operational capabilities pertain to the organization's ability to maintain and exploit existing business activities through existing technology (Konopik et al., 2022). Operational capabilities therefore also have a connection to ambidextrous capabilities (Kronblad et al., 2023; Chang et al., 2012) as existing operations must be balanced with renewed digital focus.
5. Organizational design: The change process that arises as a result of digital transformation challenges the structures within the organization. To create a resilient and dynamic organization, companies must possess organizational capabilities related to organizational design and the modification of established structures in line with digital strategies, innovation, and adoption of new technology (Warner & Wäger, 2019; Konopik et al., 2022).
6. Leadership and culture: Organizations' ability to lead the transformation within the organization forms the foundation for whether the process remains successful or not. Capabilities related to the organization's leadership also concern culture and permeate all levels of the organization (Konopik, 2022; Warner & Wäger, 2019). In the following part, we will present the empirical data from this study.

1.6 Methodology

Three criteria have been used to select informants for this study. 1) The selection of firms for this study has been from the top 25 largest law firms in Norway. 2) The informants possess a key leadership position in the form. 3) And have decision power to influence digitalization and technology development at a strategic level. Based on the "snowball" orientation, one firm has been approached after the other, in total six firms were willing to participate in this study. All interview data has been transcribed and coded, based on the raw material from the interviews. Because of business secrecy we cannot display the raw data in this paper. Coding of each interview has been conducted, according to the theoretical dimensions developed by Konopik et al. (2022). To ensure internal validity, the interview guide as been developed from the theoretical basis of Konopik et al (2022). In terms of external validity, it is not possible to make numerical generalizations with few firms and few interviews. Generalization can only be based on theoretical sampling, and drawing insights from the data presented. Below is a presentation of interview details.

Table 1: Overview of interviews, length and form

Law Firm/informant	Length of the interview	Form
F1	60 minutes	Personal presence
F2	55 minutes	Teams
F3	1:20 minutes	Personal presence
F4	55 minutes	Personal presence
F5	46 minutes	Personal presence
F6	55 minutes	Teams

2. Empirical Data

2.1 Strategy and Ecosystem

AI leads to changing client needs, and utilizing technology will be a source of competitive advantage:

> *"And the technology affects everyone, not just the legal industry. And it also means that you get pushed by customers and clients like... 'If you use this, can you deliver this in a different way?' And that push you get from clients to bring about change; I think that is necessary." (F2)*

> *An informant says that "There are many projects ongoing, and a lot is about the small changes that create smaller, but continuous, developments all the time." (F3).*

"So I think that, combined with more insight from the clients and becoming more customer-centric, combined with more focus on people and culture and the people dimension, I think will become extremely important in our industry." (F3) The empirical findings show that the companies collectively have strong capabilities in strategy and ecosystem. All the companies appear to shape strategic decisions based on considerations of contributing to successful digital transformation.

2.2 Innovation

> *"It is the incremental nature of innovation that happens all the time, not one big transformation." (F4).*

For innovative capabilities in the central sensory mechanism, all the companies show strong capacities related to identifying innovation. The companies are relatively similar and use and are offered much of the same new technology. This is in line with the theory of distinctive characteristics for such companies and industries. With the exception of company 2, there is little internal innovation within the companies, beyond the more organic. This diminishes the innovation capabilities in the grasping and transformation mechanism. In extension of this, our findings indicate that none of the informants aim to be early adopters of new technology, which may explain why there is a low level of innovation in the companies investigated.

2.3 Technology and Data

> *"Even though the industry and management have raised their sights and are investing, it is the user base itself that is the final step that lags behind. User adoption is something I work on a lot. To get more out of tech, I also need to ensure that we have enough basic knowledge to support it. For I cannot be support for everyone all the time." (F4) "It is easy to buy technology. It is the implementation that presents challenges." (F5)*

Within technological capabilities where the sensory mechanism is particularly relevant, the companies score on average high. This is because all have dedicated employees with a background and/or education in technology. Our findings show a high willingness to invest in new technology, but they indicate, however, that all the companies face challenges related to user adoption, and they have varying degrees of internally change-willing employees. Nevertheless, several place a strong focus on user adoption, which makes the capabilities within the seize and transformation mechanisms around moderately strong.

2.4 Operations

"I wish I had a way to identify inefficiency. It is demanding because it requires that the lawyers allocate some time. We need to have workshops, we need to have working meetings to map things out. Questions such as: What do you do today? Are there any deviations? And then outline and create a process description, identify pain points, and then see if you could do it in a different and more efficient way." (F3) All companies operate efficiently and profitably and make good use of existing business processes. There is some variation in the approach and level of mapping inefficiencies in existing operations, and few use internal data to carry this out. There is also a low degree of capabilities related to exploring new ways of doing things based on external data, which indicates generally low ambidextrous capabilities.

2.5 Organizational Design

“We have good information flow, but as an organization, we probably have the potential for it to become even better. The lawyers have a lot to do and are focused within their field. So even though information about, for example, new tools has been communicated, it still turns out that the information has not always been received.” (F2) The empirical findings show that well-implemented data management systems facilitate important knowledge management in the transformation mechanism. Although the data material indicates that several experience some issues regarding information flow and reaching employees, this is largely due to employees being focused on their own work areas. The companies' capabilities within the sensing and seizing mechanism are therefore moderate.

2.6 Digital Transformation: Leadership and Culture

"We have been working quite a lot with culture and organization now, in relation to digital transformation and change. These are things that are not so easy to explain and be very concrete about to the employees, but which I still believe are extremely important for us to work on." (F2) The findings indicate that companies generally score high in capabilities related to culture and leadership. While several companies have invested in and increased such capabilities by hiring capable and competent leaders for digitalization, the data also shows a generally willing workforce to embrace change, given sufficient time. One company has also succeeded with

an incentive scheme to maintain engagement and openness around new technology, by allowing billing for innovation projects. This can be a key tool for overcoming time constraints in companies, and something that other companies should seek to implement.

Comparison of the six law firms:

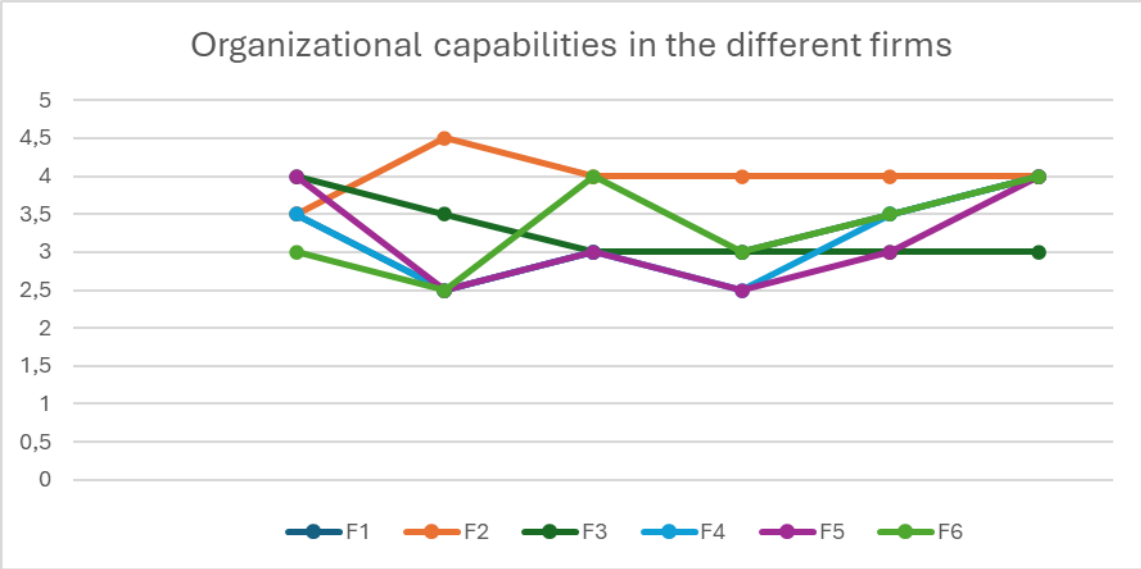


Figure 1: Organizational capabilities in the different law firms

Figure 1 have the following legends: F1: Strategy and ecosystem, F2: Innovation, F3: Technology, F4: Operations F5: Organizational design, F6: Leadership and culture

3. Discussion

The study has explored and compared traditional business law firms, and their organization and capabilities in digital transformation. The study aims to answer the following research question: Which organizational capabilities are expressed when business law firms undergo digital transformation? We have examined which of the key organizational capabilities in digital transformation companies possess. Our empirical findings indicate that companies to varying degrees have important organizational capabilities, and that processes and routines in combination with management directives contribute to creating dynamic capabilities. The data shows that all the companies have strategies for digital transformation, either directly or indirectly. There is generally a high willingness to invest in technology and resources in connection with technology. There is a high level of digital competence in the management of the companies, and ongoing digitalization projects are carried out to ensure user adoption. The findings also show good data management systems and knowledge management. Several of the companies have change-oriented employees and place a strong focus on creating a culture for change. Our empirical findings, however, also show that the companies have room for improvement in collaborating within value networks and creating ecosystems. There is a low degree of innovation, although one company stands out, and generating more innovation is therefore essential. Furthermore, the data indicates that user adoption and time pressure are central barriers preventing knowledge workers from realizing the potential of legal tech solutions. Where the company excels at streamlining existing processes, our findings show that they lack ambidextrous capabilities to exploit simultaneously. Finally, despite a high focus on culture, it will be crucial to create a greater understanding of digitalization and innovation within the companies.

4. Conclusion

With our research question in mind: Which organizational capabilities are expressed when business law firms undergo digital transformation? Our findings enrich the dynamic capability perspective presented by Konopik et al. (2022) as we highlight the critical dimensions of digital transformation and AI. Our extension of the analytical framework applied shows how this framework functions as a roadmap for change. From our analysis of the different dimensions, it appears evident that there are large differences in each law firm's approach to innovation and organizational design. The organizational design factors are in addition to leadership and

culture deemed to be critical for digital transformation and utilization of AI. Thus, it is not innovation or IT in itself – but the abilities to incorporate and use the technology in the organization by developing dynamic capabilities, as organizational design, culture and leadership are key drivers, as shown in this study.

It can further be problematized that the size of the sample is a limitation. The study provides insight into six traditional business law firms, all of which have offices in Oslo. The geographical context is therefore limited. A larger and more diverse study in the field could help to confirm or refute the findings. In extension of the idea that dynamic capabilities can provide competitive advantages in dynamic environments, it would be interesting to study and compare whether law firms with stronger organizational capabilities in digital transformation are able to demonstrate better results than others. Finally, more in-depth observations and long-term studies of law firms can reveal why traditional business models and longstanding practices have been maintained over time, as well as uncover variations that may explain how organizational capabilities are developed.

AI Declaration: Both Google and Microsoft AI have been used to spell check and to ensure correct language in this document, and ChatGPT5 was used to check references. For the review, ChatGPT5 was used as a discussion partner for improving the abstract, introduction and the theoretical template.

Ethics Declaration: Ethical clearance was not required for the research.

References

Aabakken, G. L., Eguia, L. M. N., Mahler, T., & Schwemer, S. F. (2023). Report: Mapping Legal Technology in Norway. https://www.jus.uio.no/ifp/english/research/publications/mapping-legal-tech-in-norway.pdf

Bharadwaj, A., El Sawy, O., Pavlou, P. A., & Venkatraman, N. (2013). Digital business strategy: Toward a next generation of insights. *MIS Quarterly*, *37*(2), 471-482.

Breunig, K. J., & Skjølsvik, T. (2017). Digitalisering av kunnskapsarbeid. *Magma*, 63-73.

Breznik, L., & Lahovnik, M. (2016). Dynamic capabilities and competitive advantage: Findings from case studies. *Management: Journal of Contemporary Management Issues, 21,* 167-185.

Chang, Y., Gong, Y., & Peng, M. W. (2012). Expatriate knowledge transfer, subsidiary absorptive capacity, and subsidiary performance. Academy of Management Journal, 55(4), 927-948.

Chanias, S., Myers, M. D., & Hess, T. (2019). Digital transformation strategy making in pre-digital organizations: The case of a financial services provider. *The Journal of Strategic Information Systems*, *28*(1), 17-33.

Christensen, C. M., Wang, D., & van Bever, D. (2013, October). Consulting on the cusp of disruption. *Harvard Business Review*.

Dipshan, R. (2023). Generative AI could automate almost half of all legal tasks, Goldman Sachs estimates. *Law.com*. https://www.law.com/legaltechnews/2023/03/29/generative-ai-could-automate-almost-half-of-all-legal-tasks-goldman-sachs-estimates/?slreturn=20240405172216

Ellström, D., Holtström, J., Berg, E., & Josefsson, C. (2022). Dynamic capabilities for digital transformation. Journal of Strategy and Management, *15*(2), 272-286.

Feroz, A. K., Zo, H., Eom, J., & Chiravuri, A. (2023). Identifying organizations' dynamic capabilities for sustainable digital transformation: a mixed methods study. *Technology in Society, 73*, 102257.

Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2014). Embracing digital technology: A new strategic imperative. *MIT Sloan Management Review*, *55*(2), 1-12.

Gong, C., & Ribiere, V. (2021). Developing a unified definition of digital transformation. Technovation, 102, Article 102217.

Gurumurthy, R., Schatsky, D., & Camhi, J. (2020). Uncovering the connection between digital maturity and financial performance. *Deloitte Insights*. https://www2.deloitte.com/content/dam/insights/us/articles/6561_digital-transformation/DI_Digital-transformation.pdf

Hadfield, G. K., & Koh, A. (2025). An economy of AI agents. *arXiv preprint arXiv:2509.01063*.

Jantunen, A., Ellonen, H. K. & Johansson, A. (2012). Beyond appearances–do dynamic capabilities of innovative firms actually differ? *European Management Journal, 30*(2), 141-155.

Karimi, J., & Walter, Z. (2015). The role of dynamic capabilities in responding to digital disruption: A factor-based study of the newspaper industry. *Journal of Management Information Systems, 32*(1), 39-81.

Klos, C., Spieth, P., Clauss, T., & Klusmann, C. (2023). Digital transformation of incumbent firms: A business model innovation perspective. *IEEE Transactions on Engineering Management, 70*(6), 2017-2033.

Konopik, J., Jahn, C., Schuster, T., Holbach, N., & Pflaum, A. (2022). Mastering the digital transformation through organizational capabilities: A conceptual framework. *Digital Business*, *2*(2), 1-13.

Kronblad, C., & Pregmark, J.E. (2019). Beyond Digital Inventions—Diffusion of Technology and Organizational Capabilities to Change. In*: Corrales, M., Fenwick, M., Haapio, H*. (eds)

Kronblad, C. (2020). Digital innovation in law firms: The dominant logic under threat. Creativity and Innovation Management*, 29*, 512–527.

Kronblad, C. (2021). *Digital Transformation of the Legal Field-A Bubble in Trouble*. Chalmers Tekniska Hogskola (Sweden).

Kronblad, C., Pregmark, J.E., & Berggren, R. (2023). Difficulties to digitalize: ambidexterity challenges in law firms. *Journal of Service Theory and Practice*, *33*(2), 217-236.

Liu D., Chen S., & Chou T. (2011). Resource fit in digital transformation: Lessons learned from the CBC Bank global e-banking project. *Management Decision, 49*(10), 1728–1742.

Løwendahl, B. R. (2009). Strategic management of professional service firms (3rd ed.). *CBS Press.*

Schneider, M. H. G., D. K. Kanbach, S. Kraus & M. Dabić. (2023). Transform Me If You Can: Leveraging Dynamic Capabilities to Manage Digital Transformation. *EEE Transactions on Engineering Management.*

Mele, G., Capaldo, G., Secundo, G. & Corvello, V. (2023). Revisiting the idea of knowledge-based dynamic capabilities for digital transformation. Journal of Knowledge Management, 28(2), 532-563.

McKinsey Global Institute (2019). Future That Works. H mgi-a-future-that-works-in-brief.pdf

Osmundsen, K. (2020). *Competences for digital transformation: Insights from the Norwegian energy sector. Proceedings of the 53rd Hawaii International Conference on System Science (HICSS-53), Maui, Hawaii, January 7-10, pp. 4281-4290. Available at: https//doi.org/10.24251/HICS.2020.529.*

Pemer, F., Börjeson, L., & Werr, A. (2020). The role of chief executive tenure for public organizations' hiring of management consultants. Governance: An International Journal of Policy, Administration, and Institutions, 33(2), 258–269.

Plekhanov, D., Franke, H., & Netland, T. H. (2023). Digital transformation: A review and research agenda. *European Management Journal, 41*(6), 821-844. https://doi.org/10.1016/j.emj.2022.09.007

Rodgers, I., Armour, J., & Sako, M. (2023). How technology is (or is not) transforming law firms. *Annual Review of Law and Social Science, 19,* 299-317.

Schmidt, N. (2023). Revisjonsgigantene vokser kraftig – her er omsetningen til de 25 største advokatfirmaene i Norge. *Advokatbladet*. https://www.advokatbladet.no/omsetning/revisjonsgigantene-vokser-kraftig-her-er-omsetningen-til-de-25-storste-advokatfirmaene-i-norge/194894 (Retrieved May 5, 2024).

Soluk, J., & Kammerlander, N. (2020). Digital transformation in family-owned Mittelstand firms: A dynamic capabilities perspective. *European Journal of Information Systems, 30*(6), 676–711.

Susskind, R., & Susskind, D. (2015). The Future of the Professions: How Technology Will Transform the Work of Human Experts. Oxford University Press.

Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic management journal*, *28*(13), 1319-1350.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic management journal*, *18*(7), 509-533.

Thornton, P. H., Ocasio, W., & Lounsbury, M. (2012). The institutional logics perspective: A new approach to culture, structure, and process. Oxford University Press.

Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of business research*, *122*, 889-901.

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *Journal of Strategic Information Systems, 28,* 118-144.

Von Nordenflycht, A. (2010). What is a professional service firm? Toward a theory and taxonomy of knowledge-intensive firms. *Academy of management Review*, *35*(1), 155-174.

Warner, K. S., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning*, *52*(3), 326–349.

Defending the Home Turf: Agility and Strategic Acceleration Amid Global Retail Entry

Lou-Anndree John and Zanele Ndaba
Wits Business School, University of the Witwatersrand, Johannesburg, South Africa

586737@students.wits.ac.za
zanele.ndaba@wits.ac.za

Abstract: The research investigated the impact of a new foreign entrant on the formulation and development of business strategy, applying Walmart's 2011 acquisition of Massmart as a case example of competitive dynamics in South Africa's mature and concentrated retail market. The Nine Forces Model, extending Porter's competitive forces with macro-environmental dimensions, was employed to analyse responses from established retailers and determine the strategies deployed in response to a foreign competitor. An interpretivist qualitative approach was adopted to collect data through semi-structured interviews with ten participants, comprising financial analysts, portfolio managers, and retail strategy executives, supplemented by market research reports, corporate disclosures and business media coverage to examine competitive manoeuvres during the merger's infancy. While the outcome remained unresolved, fieldwork was conducted during the anticipatory window between conditional approval of the merger and the entrant's operational arrival. The findings indicate that entry did not prompt Shoprite, Pick n Pay, Spar and Woolworths to radically redesign their existing strategies when confronted with asymmetric foreign entry into their home market. The acquisition acted as a catalyst, compressing the timetable for delivery of initiatives already in the pipeline and enhancing operational efficiencies. The central tension lay between Walmart's signature Everyday Low Pricing (EDLP) model and the traditional high-low discount strategies utilised by established retailers. Rather than imitate EDLP, legacy retailers intensified localised, aggressive promotional discount cycles, capitalising on consumers' familiarity with bargain-hunting and promotional shopping. The study demonstrated that defending and surviving global disruptions in emerging markets does not necessarily require domestic companies to imitate a foreign entrant's cost-leadership strategy. Strategic resilience is achievable through a combination of capabilities that leverage market knowledge, brand heritage, customer relationships, promotional agility and physical accessibility. This research advances the literature on strategic management by establishing that efficacious responses to asymmetric foreign competition can originate from locally embedded, path-dependent capabilities that global competitors may find challenging to imitate in emerging economies, thus offering effective protection against global disruption.

Keywords: Competitive dynamics, Foreign market entry, Defensive strategies, Emerging markets, Strategic resilience

1. Introduction

New market entrants act as catalysts for transformation, redefining competitive landscapes by introducing a compendium of business elements, including capital, processes, marketing strategies, trademarks, and technology in pursuit of market share (Mhonyera et al., 2020; Porter, 1980a, 2008). When a multinational enterprise (MNE), and the world's largest retailer, enters a mature oligopoly market, the scenario presents a natural experiment in strategic response. This research analysed how domestic firms responded to a new foreign competitor and whether these reactions caused notable shifts in their business strategies or industry structure. The enquiry identified the strategies established companies employ in the ordinary course of business, and their responses to foreign competition (Fleisher and Bensoussan, 2007; Porter, 1980a, b, 2008). A new entrant introduces uncertainty, triggers apprehension, and alters competitive dynamics. They may therefore encounter significant resistance from established businesses and domestic stakeholders seeking to protect their market position and profitability through strategic, structural, and regulatory mechanisms (Batsakis et al., 2023; Bonakele et al., 2014; Da Rocha and Dib, 2002).

The retail industry experiences comparatively limited globalisation, constrained by variations in consumer preferences and behaviours, local competitive advantages, operational complexities, supplier availability, and reduced economies of scale, resulting in most chains operating predominantly in domestic or neighbouring markets (Batsakis et al., 2023; Rugman and Girod, 2003; Swoboda and Elsner, 2013). Advances in technology, international sourcing, and universal consumer segments have propelled the retail industry into the global landscape, creating opportunities for further growth and expansion (Arcidiacono et al., 2020; Da Rocha and Dib, 2002).

In November 2010, after the initial rejection, Walmart revised its bid to acquire 51% of Massmart, proposing a transaction that would retain its Johannesburg Stock Exchange (JSE) listing and ensure shareholders could participate in the future growth of the merged entity (Bonakele et al., 2014; Walmart, 2011). South Africa was the leading retail market in sub-Saharan Africa, ranking twentieth globally, with a growing middle class,

infrastructure capable of efficient distribution across cities, towns, and diverse retail formats, facilitating the expansion of modern retail (Ntloedibe, 2011; The Economist Intelligence Unit, 2009). A small consortium of enterprises, namely Shoprite, Pick 'n Pay, Spar, Massmart, and Metcash, accounted for 80% of retail sales in 2009 (Ntloedibe, 2011). These firms had sustained growth by prioritising market segments, expanding through franchising and acquiring smaller independent retailers rather than establishing large-format stores, securing market share and preserving their local legacy without relying exclusively on greenfield store development (Mhonyera et al., 2020). Although stakeholders expressed intense opposition, citing potential adverse economic impact, including the effects of increased foreign imports through centralised global procurement, the displacement of local manufacturers, the erosion of labour standards, and substantial employment losses, there are international cases that demonstrate beneficial outcomes (Bonakele et al., 2014). Da Rocha and Dib (2002) noted that Walmart's entrance in Brazil during the 1990s was regarded as hostile competition and prompted significant industry transformation but ultimately facilitated the modernisation of retailing in the country. Similarly, recognising that strengthening Massmart's position in South Africa's concentrated retail market could benefit consumers by increasing competition and choice, the Competition Tribunal conditionally approved Walmart's entry into the country in May 2011 (Competition Tribunal, 2011).

This paper advanced the study of competitive dynamics and the responses of domestic firms to foreign entry in emerging markets. The research contribution was both conceptual and methodological. Conceptually, the field has primarily concentrated on the entrant, examining its geographic scope (Rugman and Girod, 2003), the performance consequences of expansion (Batsakis et al., 2023) and its withdrawal from foreign markets (Schmid et al., 2021). When studying domestic companies, researchers typically analyse outcomes such as revenue displacement, fluctuations in profits, loss of market share, or business exit (Ailawadi et al., 2010; Arcidiacono et al., 2020; Gielens et al., 2008). There is a paucity of research on how companies in a concentrated emerging market perceive an asymmetric foreign competitor (Batsakis et al., 2023; Bonakele et al., 2014; Chen et al., 2021). Methodologically, existing literature relies on retrospective case studies, archival data, longitudinal panels, and post-entry performance tracking to assess entry after the entrant begins trading and to infer strategic intent from subsequent manoeuvres and financial results (Batsakis et al., 2023; Bonakele et al., 2014; Swoboda and Elsner, 2013). This study was conducted as a real-time analysis within the anticipatory window, between the conditional approval of the merger and operational entry, while domestic retailers were formulating their positions, and the outcome remained genuinely unresolved.

2. Literature Review

2.1 The Conceptual Framework: The Nine Forces Model

The premise that a company's strategic success depends on its relationship with the external environment, specifically the industry structure that establishes the rules of competition influencing profitability, is foundational in strategic management (Mhonyera et al., 2020; Porter, 1996, 2008). Porter (1980a, 2008) argues that an industry's structure, characterised by five competitive forces, determines the intensity of rivalry and the profit available in the market. However, Hamel and Prahalad (2005) caution that few companies accurately predict competitor dynamics, because a myopic focus on existing resources and current competition prevents them from grasping the true resolve, stamina, and ingenuity of potential competitors.

Classic strategic management literature defines strategy as a deliberate, long-term sequence of co-ordinated initiatives intended to establish a defensible business model and drive sustainable profitability (Mhonyera et al., 2020; Porter, 1996). In dynamic markets, effective strategy extends beyond static positioning to foster agility and resilience, enabling continuous adaptation to external volatility and competitive shocks (Chen et al., 2021; Hayati et al., 2021). Hamel and Prahalad (2005, p. 150) argue that traditional competitor analysis is analogous to 'a snapshot of a moving car' in isolation, as it reveals limited insight into the vehicle's direction and speed. Consequently, strategy is described as 'temporary, complicated, and unpredictable' because what succeeds at one moment may not be effective later (Eisenhardt and Brown, 1998, p. 789). Porter's Five Forces are similarly limited in rapidly evolving or emerging markets when used in isolation, as they assume industry structures are static and discount technological change and human agency (Hayati et al., 2021). Fleisher and Bensoussan (2007) mitigate these limitations by integrating the Five Forces with the political, economic, social, technological, legal, and environmental dimensions of the macro-environment (PESTLE). From this, the Nine Forces Model was developed to assess a company's agility and strategic direction by combining tangible market elements with evolving human factors, and holds that competitiveness is actively cultivated, not inherited (Hayati et al., 2021). Here, resilience refers narrowly to the capacity to absorb a competitive shock and continue functioning without relinquishing a strategic position, in line with the definitional caution of Hillmann and Guenther (2021).

2.2 Generic Strategies and Pricing Regimes

Porter (1980a) suggests that superior performance results from generic strategies involving two dimensions: strategic scope, which determines the target market, and the sources of advantage, which align core competencies with either cost efficiency or product differentiation. Profitability is therefore not a linear function of market share, and optimal positioning requires aligning internal capabilities with industry structure to cultivate advantages resistant to imitation (Mhonyera et al., 2020; Porter, 1996). Barney et al. (2021) reinforce this logic, locating a sustainable competitive advantage in valuable resources that competitors cannot easily acquire or imitate at a reasonable cost.

In mature industries, traditional retailers encounter dual competitive pressures from domestic rivals and multinational discounters deploying Everyday Low Pricing (EDLP) (Ailawadi et al., 2010; Rugman and Girod, 2003). When a global retail giant executes asymmetric market entry, its economies of scale, integrated logistics, and inventory systems enable it to operate with substantially lower gross margins and materially undercut legacy competitors on shelf price (Rugman and Girod, 2003; Volpe and Boland, 2022). Unlike high-low pricing, which pairs elevated regular prices with frequent promotional discounts, EDLP maintains consistent across a range of products to stimulate traffic (Arcidiacono et al., 2020; Hoch et al., 1994). This gross margin gap poses a dilemma: ignoring price leverage triggers immediate volume contraction and share erosion, as demonstrated by companies that faced financial distress or bankruptcy after low-cost expansion (Arcidiacono et al., 2020; Volpe and Boland, 2022).

Although EDLP and high-low pricing appeal to heterogeneous consumer preferences, the former for time-sensitive shoppers and the latter for bargain seekers, both can coexist in market equilibrium (Arcidiacono et al., 2020; Lal and Rao, 1997). Pricing is nevertheless moderated by home-market demographics and localised operational norms (Ellickson and Misra, 2008). MNEs typically retain core format elements (store layout, type and location) while adapting pricing and promotional cycles to host-country realities (Swoboda and Elsner, 2013).

2.3 Domestic Responses to a Foreign Entrant

Studying Walmart's expansion into emerging markets, Da Rocha and Dib (2002) classified domestic responses into four distinct trajectories: retaining the baseline strategy while neutralising entrants; evolving strategy to reinforce established advantages; redefining target markets; or restructuring ownership. Its previous ventures into Mexico, Brazil, Central America, and India provoked strong responses and reshaped local retail practices (Gielens et al., 2008). Dominant retailers counter multinational entry by leveraging non-replicable local capabilities, including consumer insights, distribution infrastructure, embedded supplier and customer relationships, and enduring brand heritage (Parnell and Lester, 2008; Swoboda and Elsner, 2013). This scholarship converges on an undeniable assertion that the most effective defence is seldom to mimic the entrant.

This synthesis yielded two propositions. First, a global MNE's asymmetric entry into a concentrated emerging economy does not compel dominant domestic companies to radically redesign their business models, but instead serves as a catalyst, accelerating existing operational efficiencies and pipeline initiatives (Bonakele et al., 2014; Mhonyera et al., 2020). Second, businesses preserve market share and profitability by adapting to competitive pressure through locally embedded, path-dependent capabilities (Rugman and Girod, 2003; Swoboda and Elsner, 2013). Strategic resilience against foreign disruption therefore relies on brand equity, market familiarity, customer relationships and extensive store footprint, which create structural barriers that global competitors find difficult to replicate (Mhonyera et al., 2020; Swoboda and Elsner, 2013).

3. Methodology

An interpretivist qualitative design was suitable for examining market dynamics, given their novelty and evolving nature, and focused on how industry experts perceive these changes rather than on measurement (Creswell and Creswell, 2009). Semi-structured interviews were the primary instrument, with a sample drawn from top retail groups featured in Deloitte's Global Powers of Retailing list, as well as from financial analysts and business journalists tracking sector trends. (Deloitte, 2011). Participants were recruited via professional networks and purposively sampled for seniority, industry expertise, and strategy development experience (Johnson et al., 2020; Mack et al., 2005). Ten in-depth interviews were held with three strategy executives and seven financial analysts, some of whom managed retail investment portfolios. While reliance on analysts is a limitation, these participants shared valuable intra-industry insights that offset the strategic reticence among executives regarding proprietary plans. Confidential in-person interviews were conducted at participants' offices, with

primary data triangulated using secondary sources such as market reports, corporate disclosures, media coverage, and advertising collateral collected during the anticipatory window. The study included participants aligned with the research goals, ensuring high information power, detailed explanations, and high conceptual density from a concentrated group (Johnson et al., 2020; Malterud et al., 2016). Data analysis followed the thematic framework articulated by Attride-Stirling (2001) and Braun and Clarke (2006). This involved systematically condensing, coding, and organising thematic networks aligned with the Nine Forces Model, ensuring credibility through peer debriefing and triangulation.

4. Findings

4.1 The Nine Forces in Effect

Participants unanimously agreed that South Africa supports a mature, highly concentrated retail sector, anchored by legacy operators with entrenched brand equity. The thematic analysis revealed nine key themes, spanning industry and macro-environmental factors from the Nine Forces Model, as well as the strategic responses identified by participants (Fleisher and Bensoussan, 2007). Every participant discussed four of the nine themes, and the remaining themes were discussed by seven or more, as recorded in Table 1:

Table 1: Frequency of key themes raised by participants

THEMES	PARTICIPANTS (n=10)
Rivalry among existing competitors	10
Technological shifts	10
Cost leadership	10
Providing leverage to expand into Africa	10
Power of consumers	9
Power of suppliers	8
Retaining strategy but implementing initiatives to neutralise new entrant	8
Evolving strategy to reinforce competitive advantage	7
Strengthening local capabilities	7

Six participants reiterated that competition remains segmented by product category and socio-economic demographics defined by the Living Standards Measure (LSMs). Due to dominance in specialised sub-markets, participants 'did not perceive the acquisition as an immediate existential threat,' noting minimal aggressive repositioning in the first twelve months despite pervasive media coverage. Participants identified three focal forces where strategic pressure concentrated: 'competitive rivalry, technological innovation and vertical supply chain power'. Three were concerned that 'Walmart's entry disrupted established pricing and distribution networks,' while the majority characterised the entrant as 'a logistics and supply chain entity that operates in retail'. Seven believed its 'footprint was in direct contrast to local retailers still reliant on direct store delivery (DSD)', and that Pick n Pay was 'lagging because it only recently opened its primary distribution centre'. All agreed that 'Walmart was an operational catalyst' that would 'force retailers to accelerate centralised distribution systems, category purchasing and direct sourcing'. Eight expected supplier power to 'weaken as retailers intensified margin pressure', citing 'Woolworths in-store campaigns to assure customers that their volume purchasing will lower supplier prices'. All acknowledged that forecasts of 'the growing Black middle class, or Black diamonds' would benefit the market, but noted that 'post-recession caution shifted demand towards private-label alternatives, such as the Woolies' brand for higher LSMs and Pick n Pay's no-name brand for the lower LSMs'.

4.1.1 Pricing regimes: EDLP vs high-low

Price emerged as a ubiquitous theme across the sample group. Participants concurred that pricing is a central axis of competition for local retailers, with a 'history of high-low pricing, setting shelf prices above competitors and using aggressive discounts to attract customers and boost basket size'. Only three noted that Walmart's approach 'invites customers to shop every day without searching for promotions,' and none anticipated migration to EDLP. There was agreement that retailers would weaponise and intensify their high-low strategies, witnessed by 'the increase in promotional campaigns with deeper price cuts, higher promotional frequency, for longer periods'; 'Spar publicly pledging to remain price competitive by increasing investment in its supply chain'; while 'Pick n Pay and Shoprite had already established the foundation to compete purely on price'.

Beyond price, generic strategies were evident in combination; most local retailers paired cost leadership with focus, while all participants noted that Woolworths and Spar differentiated themselves through quality, convenience, and range. Various participants suggested that 'Walmart's presence could eventually foster a new type of retailer focused on differentiation rather than price alone'. A notable departure from the generic model was the emphasis on footprint: all participants described a 'contest for mall space and land acquisition in South Africa and across the African continent to secure first-mover advantage'.

4.1.2 Acceleration versus redesign

All participants' accounts are categorised according to the typology in Table 2. Initiatives appeared in all four categories, but most were concentrated in the first two, while the fourth category was represented by a single marginal example.

Table 2: Competitive responses observed during the anticipatory window of Walmart's entry into South Africa

RESPONSE CATEGORY	INITIATIVES OBSERVED	ILLUSTRATIVE EXAMPLES
Retain present strategy, neutralise entrant	Increase advertising, promotion and discounting; loyalty programmes launched or accelerated; encouragement of union and government objections	Pick n Pay Smart Shopper; Woolworths W Rewards; Spar My Spar; My Community
Evolve strategy to reinforce advantages	Centralised distribution; category buying; direct and offshore sourcing; centralised buying	Shoprite investigating a China buying office; Woolworths offshore buying offices; Pick n Pay distribution centres
Evolve strategy to redefine markets	Competition for mall space; property acquisition in South Africa and Africa; capital raising and redeployment	Shoprite R8 billion capital raise; Pick n Pay sale of Franklins in Australia
Changing ownership	Minimal	Spar repurchasing stores from independent franchisees

Three participants revealed that some firms had privately urged the anti-coalition to delay the transaction while hastily launching loyalty programmes, such as Pick n Pay Smart Shopper, for brand engagement and customer retention. Supply chain initiatives, by contrast, were defensive investments aimed at enhancing capability. Participants clearly stated that no direct causal connection could be established between the merger and these projects, but the underlying sentiment across the sample was that firms were accelerating competitive strategies rather than an aggressive redesign.

5. Analysis

5.1 The Nine Forces in Effect

The evidence indicated that Walmart's entry simultaneously affected the industry and macro-environmental forces, exerting pressure on rivalry, supply chain technology, the power of suppliers and buyers, and the political and legal environment. The explanation resided in the perception of the threat, considering that competition in the South African retail sector is segmented by product category and socioeconomic status, and that the current market leaders commanded a defensible sub-market. An entrant whose formats and pricing architecture did not map onto any single retailer's territory was consequently not construed as a direct threat by any of them. Koçak and Topaler (2023) established that the shared schemas through which domestic retailers classify a market govern both whether an entrant is registered as a threat and the form of responses. Chen and Miller (2012) argued that awareness precedes motivation and capability in a competitive sequence. Participants were cognisant of the acquisition and remained unconcerned, which accounts for the absence of assertive repositioning despite persistent media and governance scrutiny. The merger established momentum by expediting initiatives related to centralised distribution, category purchasing, and direct sourcing already in the pipeline, thus diverting focus from redesign efforts. A model confined to industry structure would note the pressure across the five forces and anticipate some structural adjustment, but none ensued. The Nine Forces Model (Fleisher and Bensoussan, 2007) accommodated the outcome by emphasising that macro-environmental factors, alongside industry structure, played a crucial role, and in this case, political and legal factors were more impactful than competition. A neutralising manoeuvre executed entirely outside the market and imperceptible to structural analysis broadened the Da Rocha and Dib (2002) typology by demonstrating that a retaining strategy, aimed at neutralising an entrant, can function through regulatory and stakeholder processes (Bonakele et al., 2014).

5.2 Defending the Local Idiom: Pricing Regimes and Strategic Acceleration

Blind imitation would have proved a less effective strategy. The two pricing regimes target distinct consumer groups and are capable of coexisting in equilibrium; thus, converging on EDLP exclusively would sacrifice a segment rather than defend it (Ellickson and Misra, 2008; Lal and Rao, 1997). Legacy retailers enhanced their existing pricing strategies by extensively implementing high-low discounting, driven by concerns that imitation may result in a quantifiable margin penalty namely that EDLP elevates sales volume while decreasing profit margins (Ailawadi et al., 2010; Hoch et al., 1994). A pricing regime is, in any event, a chain-level commitment, expressed in supply chain design and promotional infrastructure, not a store-level tactic, which makes reversal slow and expensive (Hitsch et al., 2021). Against these constraints, knowledge of the local consumer was an asset the foreign entrant could not purchase, and deploying it was a prudent defence. (Barney et al., 2021; Dawar and Frost, 1999). The responses were carefully calibrated, with Woolworths reducing prices on premium locally sourced products while preserving its distinctive market position. Meanwhile, Shoprite and Pick n Pay engaged in price competition from well-established market positions, consistent with evidence that market strategies often diverge by position and rarely converge on a single manoeuvre (Chang and Sokol, 2022).

Acceleration, therefore, delineates both direction and pace, as each initiative augmented the home advantage, and none advanced towards the entrants' axis. Footprint illustrates how the contest for mall space and land across South Africa and the continent transformed a positional advantage into a barrier to entry, as evidenced by Shoprite's capital raise and Pick n Pay's sale of Franklins. Cost leadership, differentiation, and focus do not provide vocabulary for a manoeuvre where the objection is physical access, not price or product. In conjunction with regulatory channels, preventing asymmetric entry depends on capabilities that entrants cannot readily acquire or develop, aligning with Barney et al.'s (2021) distinction between a resource and a competitive advantage.

6. Conclusion

Asymmetric entry by a multinational into a mature, highly concentrated emerging market primarily acts as a catalyst, compressing the timetable for pre-existing pipeline initiatives to circumvent a radical business redesign. Strategic defence was anchored in the home-market idiom, through promotional intensity tailored for consumer habits, supply chain centralisation, the pre-emptive occupation of physical space and leveraging regulatory and stakeholder channels that the entrant was not favourably positioned to contest. These responses were not inherently novel, but their efficacy derived from assets, knowledge, and relationships accumulated over decades in a market the entrant had yet to learn (Barney et al., 2021; Batsakis et al., 2023).

The study makes three contributions. Conceptually, it shifts the analytical object from the entrant to incumbents, and demonstrates that competitive responses are driven by perception, not by the magnitude of the threat. Specifically, where an entrant's formats and pricing architecture do not map onto any single incumbent's territory, awareness does not convert into motivation to reposition (Chen and Miller, 2012; Koçak and Topaler, 2023). Methodologically, reasoning within the anticipatory window differentiates pipeline acceleration from reactive strategy formulation, a distinction that retrospective studies cannot draw once the outcome is recorded. Empirically, it extends the typology of Da Rocha and Dib (2002) by showing that retaining strategy while neutralising an entrant can operate through regulatory and stakeholder processes. It also establishes that pre-emptive occupation of space serves as a defensive tactic, a concept for which generic strategies lack precise vocabulary (Fleisher and Bensoussan, 2007; Porter, 1996).

Limitations are bound by three claims. The sample is weighted towards analysts, which broadens coverage across the sector while restricting access to proprietary strategic reasoning, a trade-off imposed by executive reticence and contractual confidentiality. The study records expectations formed before trading commenced rather than realised outcomes. Accordingly, it establishes what incumbents anticipated, but not what they ultimately followed.

The more pressing question is whether locally embedded capabilities can withstand a different class of entrant or endure over the longer horizon.

Ethics Declaration: This research study received the applicable and relevant ethics clearance from the institutional research ethics committee.

AI Declaration: During the preparation of this work, [Grammarly AI] was utilised to review grammar, spelling, and sentence fluency. The authors thoroughly examined the results and accept full responsibility for the final version.

References

Ailawadi, K. L., Zhang, J., Krishna, A. and Kruger, M. W. (2010) 'When Wal-Mart enters: How incumbent retailers react and how this affects their sales outcomes', *Journal of Marketing Research,* 47(4), pp. 577-593.

Arcidiacono, P., Ellickson, P. B., Mela, C. F. and Singleton, J. D. (2020) 'The competitive effects of entry: Evidence from supercenter expansion', *American Economic Journal: Applied Economics,* 12(3), pp. 175-206.

Attride-Stirling, J. (2001) 'Thematic networks: an analytic tool for qualitative research', *Qualitative Research,* 1(3), pp. 385-405.

Barney, J. B., Ketchen Jr, D. and Wright, M. (2021) 'Resource-based theory and the value creation framework', *Journal of management,* 47(7), pp. 1936-1955.

Batsakis, G., Theoharakis, V., Li, C. and Konara, P. (2023) 'Internationalization and digitalization: Their differing role on grocer and non-grocer retailer performance', *Journal of Retailing,* 99(3), pp. 400-419.

Bonakele, T., Beaty, D., Rasool, F. and Kriek, D. (2014) 'Examining the entry of Walmart into South Africa: A stakeholder management perspective', *South African Journal of Labour Relations,* 38, pp. 78-89.

Braun, V. and Clarke, V. (2006) 'Using thematic analysis in psychology', *Qualitative Research in Psychology,* 3(2), pp. 77-101.

Chang, H. H. and Sokol, D. D. (2022) 'How incumbents respond to competition from innovative disruptors in the sharing economy—The impact of Airbnb on hotel performance', *Strategic Management Journal,* 43(3), pp. 425-446.

Chen, H., Zeng, S., Wu, C. and Fu, H. (2021) 'The dual effect of foreign competition on emerging market firms' internationalization', *Management Decision,* 59(9), pp. 2264-2285.

Chen, M.-J. and Miller, D. (2012) 'Competitive dynamics: Themes, trends, and a prospective research platform', *Academy of Management Annals,* 6(1), pp. 135-210.

Competition Tribunal (2011) *Wal-Mart Stores Inc and Massmart Holdings Limited* (LM073Nov10. Available at: https://comptrib.co.za/cases-case-files/wal-mart-stores-inc-and-massmart-holdings-limited.

Creswell, J. W. and Creswell, J. D. (2009) *Research design: Qualitative, quantitative, and mixed methods approaches.* Sage publications.

Da Rocha, A. and Dib, L. A. (2002) 'The entry of Wal-Mart in Brazil and the competitive responses of multinational and domestic firms', *International Journal of Retail & Distribution Management,* 30(1), pp. 61-73.

Dawar, N. and Frost, T. (1999) 'Competing with giants. Survival strategies for local companies in emerging markets', *Harvard Business Review,* 77(2), pp. 119-29, 187.

Deloitte (2011) *Global Powers of Retailing 2011*, London: Deloitte Global Services.

Eisenhardt, K. M. and Brown, S. L. (1998) 'Competing on the edge: Strategy as structured chaos', *Long Range Planning,* 31(5), pp. 786-789.

Ellickson, P. B. and Misra, S. (2008) 'Supermarket pricing strategies', *Marketing Science,* 27(5), pp. 811-828.

Fleisher, C. S. and Bensoussan, B. E. (2007) *Business and competitive analysis: effective application of new and classic methods.* FT press.

Gielens, K., Van de Gucht, L. M., Steenkamp, J.-B. E. and Dekimpe, M. G. (2008) 'Dancing with a giant: The effect of Wal-Mart's entry into the United Kingdom on the performance of European retailers', *Journal of Marketing Research,* 45(5), pp. 519-534.

Hamel, G. and Prahalad, C. K. (2005) 'Strategic Intent', *Harvard Business Review,* 83(7), pp. 148-161.

Hayati, N., Jaelani, E., Sopian, D. and Dewi, I. P. 'Analysis of competitive strategy to create sustainable competitive advantages seen from the nine factor model and bacos treacy model'. *Journal of Physics: Conference Series*: IOP Publishing, 012053.

Hillmann, J. and Guenther, E. (2021) 'Organizational resilience: a valuable construct for management research?', *International Journal of Management Reviews,* 23(1), pp. 7-44.

Hitsch, G. J., Hortacsu, A. and Lin, X. (2021) 'Prices and promotions in US retail markets', *Quantitative Marketing and Economics,* 19(3), pp. 289-368.

Hoch, S. J., Dreze, X. and Purk, M. E. (1994) 'EDLP, Hi-Lo, and Margin Arithmetic', *Journal of Marketing,* 58(4), pp. 16-27.

Johnson, J. L., Adkins, D. and Chauvin, S. (2020) 'A review of the quality indicators of rigor in qualitative research', *American journal of pharmaceutical education,* 84(1), pp. 7120.

Koçak, Ö. and Topaler, B. (2023) 'Shared identity schemas shape incumbent responses to new entrants', *Strategy Science,* 8(4), pp. 405-425.

Lal, R. and Rao, R. (1997) 'Supermarket competition: The case of every day low pricing', *Marketing Science,* 16(1), pp. 60-80.

Mack, N., Woodsong, C., MacQueen, K. M. and Guest, G. (2005) *Qualitative research methods.* Family Health International.

Malterud, K., Siersma, V. D. and Guassora, A. D. (2016) 'Sample size in qualitative interview studies: guided by information power', *Qualitative Health Research,* 26(13), pp. 1753-1760.

Mhonyera, G., Coetzee, Z. and Bezuidenhout, H. (2020) 'Effective strategies followed by multinational enterprises expanding into Africa', *Journal of Economic and Financial Sciences,* 13(1), pp. 1-12.

Ntloedibe, M. (2011) *Annual Retail Food Sector Report 2010*, Pretoria: USDA Foreign Agricultural Service. Available at: https://agris.fao.org/search/en/providers/122535/records/65de1394b766d82b18fc2ab3.

Parnell, J. A. and Lester, D. L. (2008) 'Competitive strategy and the Wal-Mart threat: Positioning for survival and success', *SAM Advanced Management Journal,* 73(2), pp. 14.

Porter, M. E. (1980a) 'Industry structure and competitive strategy: Keys to profitability', *Financial Analysts Journal,* 36(4), pp. 30-41.
Porter, M. E. (1980b) *Techniques for analyzing industries and competitors.* New York: The Free Press.
Porter, M. E. (1996) 'What is Strategy?', *Harvard Business Review,* Nov-Dec.
Porter, M. E. (2008) 'The five competitive forces that shape strategy', *Harvard Business Review,* 86(1), pp. 78.
Rugman, A. and Girod, S. (2003) 'Retail multinationals and globalization: the evidence is regional', *European Management Journal,* 21(1), pp. 24-37.
Schmid, D., de Thomas Wagner, F. and Morschett, D. (2021) 'Archetypes of driver combinations leading to foreign market exit: An investigation into European grocery retailing', *Management International Review,* 61(4), pp. 521-562.
Swoboda, B. and Elsner, S. (2013) 'Transferring the retail format successfully into foreign countries', *Journal of International Marketing,* 21(1), pp. 81-109.
The Economist Intelligence Unit (2009) *Consumer Goods and Retail Report*, London.
Volpe, R. and Boland, M. A. (2022) 'The economic impacts of walmart supercenters', *Annual Review of Resource Economics,* 14, pp. 43-62.
Walmart 2011. Walmart Confirms Offer to Acquire 51% of Massmart.

Collectivistic Leadership as a Mechanism of Leadership Without Hierarchy in Emerging Organisational Forms: An Integrative Literature Review

Reilika Jugolainen-Klesnina and Kurmet Kivipõld
Faculty of Economics and Business Administration, University of Tartu, Estonia

reilika.jugolainen-klesnina@ut.ee
kurmet.kivipold@ut.ee

Abstract: This integrative literature review examines how collectivistic leadership and new organizational forms interact, what conditions enable or constrain that interaction, and what organizational outcomes their alignment produces. Despite their parallel development as research domains, studies theorizing their intersection as a joint phenomenon remain rare. A systematic search of the Scopus database using paired keyword combinations yielded 481 records. Following deduplication, abstract screening, and full-text review against pre-specified inclusion criteria, 21 peer-reviewed articles published between 2005 and 2025 were retained. Among the key findings, the relationship between collectivistic leadership and new organizational forms follows no single pattern: where structural change is intentional, collectivistic leadership drives structural form; where change is forced by crisis, structure precedes and shapes leadership; and in values-driven new ventures, both emerge simultaneously. Hierarchical authority functions as a precondition for collective governance rather than its obstacle — initiating, legitimizing, and protecting the conditions under which collectivistic leadership becomes viable. Innovation appears as an emergent outcome of their alignment, with collectivistic leadership enabling knowledge exploitation and structural autonomy enabling exploration. Digital transformation reinforces this dynamic bidirectionally: it drives structural flattening and decentralization, while collectivistic leadership in turn shapes how technology is adopted and deployed. Enabling conditions — including interpersonal trust, shared vision, cultural readiness, and structural stability — determine whether these relationships take root or stall, explaining why identical structural changes produce collectivistic leadership in some contexts and fail in others. The central finding is that the literature treats these phenomena in two different ways: some authors treat them as one, others as two distinct ones, reflecting different theoretical frameworks applied to the same underlying mechanism. Combining organization design theory and leadership theory offers a richer understanding of how organizational form and leadership practice shape each other, and opens new possibilities for studying innovation in contemporary organizations.

Keywords: Collectivistic leadership, New organizational forms, Flat structure, Decentralization, Organizational innovation, Digital transformation

1. Introduction

Technological innovation, ranging from generative AI to advanced digital technologies, is fundamentally reshaping the role of human capital. As automation increasingly assumes responsibility for routine tasks, human workers are becoming more focused on creative, knowledge-intensive, and highly specialized activities. For organizations operating in volatile and unpredictable environments, digital transformation is not a choice but a necessity. In this new context continuous innovation increasingly depends on the "literati" – talented, highly skilled workers who require significant job autonomy and self-direction to perform at their best. Directing such talent through traditional, top-down bureaucratic command-control is not only exceedingly expensive but highly ineffective, raising the legitimate question of whether specialists even need to be managed in the traditional sense (Teece 2007).

Across diverse contexts, including manufacturing (Zhang and Fan 2024), healthcare (Leask and Macleod 2023; Thompson *et al.,* 2025), higher education (Girdharry and Wynstra 2025), and start-ups (de Gennaro *et al.,* 2023), a robust pattern emerges. Collectivistic leadership practices consistently drive the transition toward decentralized, flat and self-managing organizational structures. By distributing decision-making power and cultivating "adaptive space" (Uhl-Bien and Arena 2018), these agile designs empower the literati and enhance knowledge flow, information exchange, and cross-functional team cohesion (Zhang and Fan 2024). Where these conditions are present, organizations appear better positioned to generate and implement innovation.

However, significant contradictions remain regarding the survival of hierarchy within these new structures. While some scholars argue that innovation requires radically non-hierarchical, "dissensual" disruptions to completely break away from established organizational constraints (Barthold *et al.,* 2020), empirical evidence highlights a persistent structural paradox. Studies demonstrate that vertical or hierarchical leadership is frequently necessary to initiate, legitimize, and protect the procedures and social logics that allow decentralized organizations to function (Avon 2008; Kummelstedt 2023). Furthermore, in highly

institutionalized settings, such as the military, shared leadership emerges not from democratic idealism, but strictly as an operational necessity to manage extreme task complexity (Çakıroğlu *et al.,* 2021).

The purpose of this review is to synthesize and critically evaluate what the current literature reveals about the relationship between collectivistic leadership and new organizational forms; how they interact and what conditions enable or constrain that interaction.

By synthesizing the literature, this review shows that when collectivistic leadership and new organizational forms are aligned, organizations develop the capacity to integrate diverse knowledge, respond to environmental uncertainty, and continuously reconfigure, with innovation emerging as a consequence of that alignment.

2. Theoretical Background

In last decades the leadership paradigm has been challenged by a cluster of alternative constructs that re-conceptualize leadership as a distributed, relational, and emergent phenomenon shared among multiple actors. Both collective and collectivistic (Yammarino *et al.,* 2012) leadership serve as umbrella terms in the literature, encompassing distributed (Gronn 2002), shared (Pearce *et al.,* 2008), democratic (Gastil 1994), team (Morgeson *et al.,* 2010), network (Brass *et al.,* 2004), complexity (Uhl-Bien *et al.,* 2007), and organizational leadership (Kivipõld and Vadi 2010) as related but distinct constructs. Across these approaches, collectivistic leadership is characterized by open boundaries, decentralized expertise, diverse formal and informal networks, dynamic and non-linear influence processes, and adaptability to fast-changing environments (Yammarino *et al.,* 2012).

Parallel to the reframing of leadership, the literature on organizational design has increasingly turned its attention to structures that move away from traditional bureaucratic hierarchies. Bremer (2026) identifies five features consistently characterizing new organizational forms: community-based organizing, decentralized decision-making authority, self-organizing teams, networking, and flexible work. Martela (2019) claims that self-managing organizations represent a qualitatively novel solution to six fundamental problems of organizing: task division, coordination, motivation, information, boundary setting, and governance, that neither Weberian bureaucracy nor Mintzberg's adhocracy resolves.

Both collectivistic leadership and new organizational forms have attracted several literature reviews. Yammarino and colleagues (2012) introduced the collectivistic leadership, calling for its integration into leadership science. De Brún and colleagues (2019) synthesized interventions to develop collectivistic leadership in healthcare, finding moderate success but limited rigor. Ospina and colleagues (2020) and Fairhurst (2020) advanced relational and discursive frameworks for studying collectivistic leadership in practice. Park (2025) provides the most recent bibliometric synthesis, mapping seven sub-types of collectivistic leadership and their divergent development trajectories. On the organizational forms side, Bremer (2026) offers a comprehensive integrative review proposing a framework of features, triggers, and outcomes, while Xu and colleagues (2025) provide a bibliometric analysis of organizational innovation research identifying digital transformation and culture as central themes.

Despite their parallel development, the relationship between collectivistic leadership and new organizational forms has not been synthesized as a joint phenomenon in the review literature. This is a significant gap: decentralized structures cannot function without the leadership practices that distribute authority and sustain collective governance, and collectivistic leadership cannot persist without the structural conditions that make it viable. Integrating these topics provides a holistic view of how organizations can simultaneously develop their structural architectures and their social dynamics to successfully adapt to rapid environmental changes. This review seeks to address that gap.

3. Review Methodology

This review follows the integrative literature review methodology as described by Torraco (2016), treating the reviewed literature as primary data from which new conceptual frameworks are synthesized. Unlike systematic reviews, integrative reviews are suited to topics where conceptual boundaries remain contested and the contribution lies in synthesizing across disciplinary silos, conditions that characterize the intersection of collectivistic leadership and new organizational forms.

A systematic search was conducted in Scopus database using paired keyword combinations drawn from two conceptual domains: collectivistic leadership and organizational forms. Leadership search terms included:

collective, shared, distributed, collaborative, participatory, democratic, plural, peer, network, complexity, dispersed, team and organizational. These were paired with self-management, flat organization, holacracy, organizational design, organizational structure, deep structure and organizational innovation.

The search returned 481 records across all keyword pairs. Following removal of 73 duplicates, 408 unique records proceeded to screening. The records were screened to exclude articles that addressed neither collectivistic leadership nor new organizational forms as a subject. Abstract screening excluded 374 records in total, leaving 34 articles for full text review. Full-text review applied three additional exclusion criteria: accessibility (three articles excluded), language (three articles excluded as not in English), and substantive scope (seven articles excluded). This yielded a final set of 21 articles. The full selection process is illustrated in Figure 1. Articles were included if they: (1) addressed collectivistic leadership as a central construct; (2) linked with new organisational forms; (3) were published in English in a peer-reviewed journal or as a peer-reviewed conference paper; and (4) were available in full text. No date, source or type of paper restriction was applied.

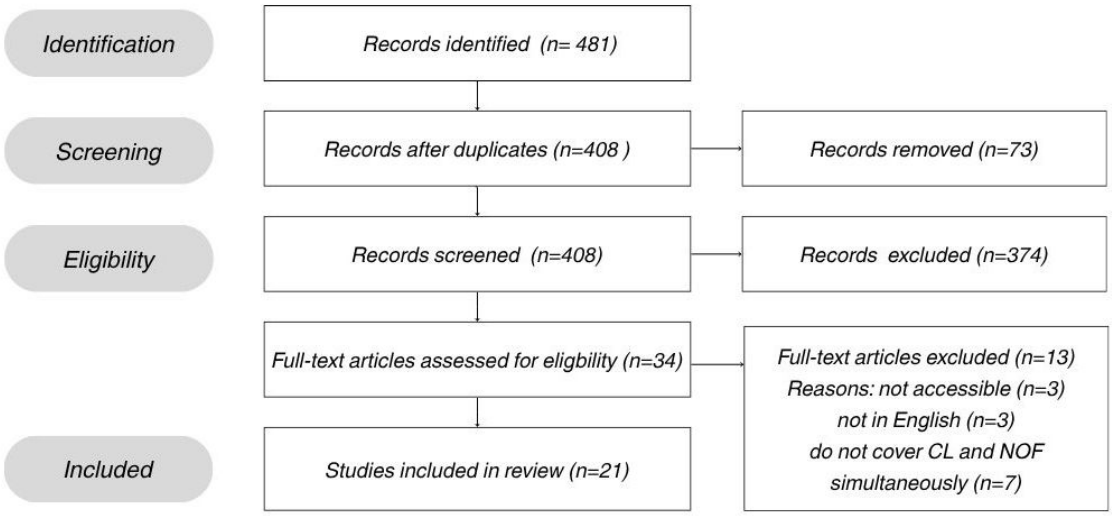


Figure 1: PRISMA flow chart

Quality appraisal was conducted using the MMAT, Version 2018 (Hong *et al.,* 2018), selected for its capacity to evaluate qualitative, quantitative, and mixed methods studies within a single standardized framework. Thirteen articles were rated High quality (score ≥ 0.80), three Moderate (Çakıroğlu *et al.,* 2021; Gonzalez and Melo 2018; Scott and Caress 2005), and one Low (Girdharry and Wynstra 2025), the latter retained for its unique contribution to AI governance. Four theoretical and conceptual articles (Barthold *et al.,* 2020; Perlak 2025; Uhl-Bien and Arena 2018; Teece 2007) assessed against criteria of argumentative clarity, grounding in prior literature, and conceptual contribution (Wallace and Wray 2011), all met the applicable criteria and were retained.

Data extraction and analysis. Each of the 21 articles was coded using a thematic scoring matrix. The matrix assigned scores of 0 (absent), 1 (incidental), 2 (substantive), or 3 (dominant) across sub-themes spanning collectivistic leadership sub-types, new organizational forms, and contextual factors, as well as the nature of the link between the two main domains. Aggregate scores across articles revealed the dominant themes, and the thematic categories structuring the Results section were derived inductively from these patterns. The content analysis was oriented toward identifying how authors conceptualize the relationship between collectivistic leadership and new organizational forms: what mechanisms connect them and under what conditions those mechanisms operate. The guiding analytical question was how and why different authors see them as linked: what binds them conceptually and what makes their relationship possible.

4. Scope of the Literature

The articles reviewed comprise twenty-one peer-reviewed studies published between 2005 and 2025. Twelve articles (57%) appeared between 2020 and 2025, two between 2015 and 2019, four between 2010 and 2014, and three prior to 2010. This temporal distribution reflects the accelerating scholarly attention to collectivistic

leadership and non-hierarchical organizational forms over the past five years. The two earliest articles (Teece 2007; Avon 2008) provide the foundational theoretical grounding.

Geographic and sectoral distribution. Studies spanned North America, Europe, South America, and China. Healthcare accounts for four studies, manufacturing for three, and higher education for two. The remainder span management consulting, military, political parties, cooperatives, technology start-ups, virtual work environments, and cross-industry samples.

5. Key Research Streams

The most significant finding to emerge across the reviewed literature is that collectivistic leadership and new organizational forms are not two separate phenomena operating in parallel, but mutually defining components of a single organizational logic. Kummelstedt (2023) shows that the self-managing organization exists precisely at the intersection of collective governance and structural flatness: neither is viable without the other. De Gennaro and colleagues (2023) observe the same inseparability among teal organizations, where self-management is simultaneously a structural arrangement and a leadership philosophy. Uhl-Bien and Arena (2018) theorize this most explicitly: adaptive space is the emergent property of their combination.

5.1 The Conceptual Linkage Between Collectivistic Leadership and New Organizational Forms

The reviewed literature reveals meaningful variation in the direction and nature of the relationship between collectivistic leadership and new organizational forms, complicating the traditional assumption that leadership simply shapes structure. Collectivistic leadership may drive structural form, structure may precede and shape leadership practices, or the two may evolve in tandem, with the direction depending on the conditions under which organizations operate.

When organizations adopt shared or distributed leadership as a new organizing principle, it generates structural consequences: decision-making becomes decentralized, governance bodies flatten, and communities of practice emerge to sustain collective knowledge flows. These structural outcomes then feed back into and deepen the leadership practices that produced them. However, this dynamic is not by default, it depends on enterprise-level infrastructure, shared vision, and senior support. Where these conditions are absent, collectivistic leadership practices fail to produce lasting structural change (Somerville and Howard 2010; Scott and Caress 2005; Leask and Macleod 2023).

Where change is forced by crisis, structure precedes and shapes leadership practices. External pressure, whether economic collapse or strategic imperatives, forces the adoption of new organizational forms, and collectivistic leadership emerges subsequently as an inherent property of those forms rather than their driver. The cooperative structure itself becomes the mechanism through which collective governance develops, with leadership practices shaped by the organizational logic already in place (Vieta 2010; Heinze and Weisskircher 2021). In values-driven new ventures, shared founding values produce organizational form and collectivistic leadership simultaneously; De Gennaro and colleagues (2023) document this among Generation Z entrepreneurs in Italy: the teal values of evolutionary purpose, self-management, and wholeness generate both distributed leadership practices and flat organizational configurations as parallel expressions of the same founding logic.

Uhl-Bien and Arena (2018) provide the theoretical architecture for all those patterns: adaptive space is simultaneously the product of enabling leadership that creates and protects it, and the structural condition that makes collectivistic leadership possible.

5.2 Conceptual Linkage to Innovation

The reviewed literature does not position innovation as a direct aim of collectivistic leadership or new organizational forms. It emerges as a systemic outcome of their interaction: collectivistic leadership distributes influence, encourages collaboration, and facilitates knowledge integration, while decentralized structures provide the autonomy and flexibility necessary for experimentation — together constituting the organizational foundation for dynamic capabilities (Teece 2007).

Gonzalez and Melo (2018) show that collaborative leadership is a significant predictor of knowledge exploitation, but not of knowledge exploration. Conversely, autonomy, a structural feature of decentralized organizational forms, predicts knowledge exploration, but not exploitation. Collaborative leadership supports the refinement and incremental improvement of existing knowledge, while the structural condition of autonomy supports the discovery and development of new knowledge. Uhl-Bien and Arena (2018) explain this

differentiation by identifying three interdependent leadership forms — "entrepreneurial", "enabling", and "operational" — each performing a distinct function in the innovation process. Entrepreneurial leadership generates new ideas at the edge of the organization, operating through search, variety, and experimentation to drive the exploration mode. Operational leadership executes and scales existing processes through selection, efficiency, and refinement to drive the exploitation mode. Enabling leadership holds the tension between them by creating, engaging, and protecting "adaptive space", the structural and relational conditions under which exploration and exploitation can coexist without one cannibalizing the other. This is, in essence, the ambidexterity problem, and the literature suggests it cannot be resolved by collectivistic leadership alone: it requires a specific structural design, the "semi-structure," that positions the organization at the edge of chaos between order and disorder. This prevents over-structuring that kills exploration and under-structuring that prevents exploitation from scaling. Mihalache and colleagues (2014) confirm this empirically through time-lagged data from Dutch firms: shared leadership enhances organizational ambidexterity through cooperative conflict management and comprehensive decision-making, while structural connectedness amplifies both effects by enabling knowledge to circulate across organizational boundaries.

5.3 Digital Transformation

The relationship between digital transformation and organizational design is inherently reciprocal: technology enables new forms of organizing, while collectivistic leadership configurations shape the direction of technological adoption. Digital transformation drives organizational change through three mechanisms: information exchange linking internal and external elements drives systemic innovation; multi-agent interaction builds trust enabling collaborative strategic innovation; and team cohesion through digital scenario interaction produces structural innovation, altogether leading to management flattening and decentralized structures (Zhang & Fan, 2024). The reverse direction is equally significant. Where collectivistic leadership is in place, it governs how technology is adopted. Girdharry and Wynstra (2025) demonstrate this at Babson College's Generator laboratory: faculty with distributed leadership, grounded in values of care, trust, and inclusion, determines which AI tools are adopted and how they shape pedagogical innovation, actively resisting vendor-imposed technological solutions. As virtual and mobile work continue to expand, shared leadership and employee autonomy are forecast to become operational necessities rather than design choices (Kauffeld *et al.,* 2022).

5.4 Enabling Conditions

As the preceding findings demonstrate, structural change alone does not produce collectivistic leadership. De Brún and McAuliffe (2020), through social network analysis of an Irish hospital group reorganized into a network structure with the explicit intention of enabling collectivistic leadership, found that eighteen months after restructuring the observed network patterns remained more typical of a hierarchical organization than a collectively governed one. High network centralization, combined with low trust, uncertainty about the permanence of the new structure, and disruption to established relationships, had prevented collectivistic leadership from taking root. Their broader synthesis of evaluated interventions identifies what was missing: team training, co-design of goals and processes, protected time for collective reflection, and the development of shared mental models are necessary preconditions for collectivistic leadership to become embedded in practice (de Brún and McAuliffe 2019). At the micro-level, Thompson *et al.,* (2025) demonstrate that plural leadership in practice is actively enacted through three conditions: familiarity by building rapport and insightful knowledge of colleagues' scopes of practice, empathy toward different roles, and structural adaptation that creates space for different individuals to step into leadership as situations demand. Çakıroğlu *et al.,* (2021) add that task complexity itself functions as an enabling condition: when tasks demand diverse expertise beyond a single leader's capacity, individuals recognise the limits of traditional hierarchies and become significantly more willing to adopt collectivistic leadership.

Across the reviewed literature, the same enabling conditions recur with sufficient regularity to be considered necessary prerequisites: interpersonal trust, cultural readiness, a permissive organisational climate, stability and perceived permanence of the new structure, enterprise-level infrastructure, shared vision, and explicit senior support. With the exception of interpersonal trust, which Çakıroğlu *et al.,* (2021) tested as a moderating variable, these conditions appear mostly as post-hoc explanations of success and failure rather than designed elements of research. Examining these enablers together reveals an interesting tension: both crisis and stability appear as enabling conditions. Crisis may force new organisational forms into existence, as Vieta's (2010) worker-recuperated enterprises demonstrate, yet those same structures require stability and perceived permanence to sustain collectivistic leadership practices (de Brún and McAuliffe 2020; Somerville and Howard

2010). The conditions that trigger the creation of new organizational forms differ from those required for their long-term sustainability.

5.5 The Paradox: Hierarchy as a Precondition

Collectivistic leadership and new organizational forms are mutually constitutive, each reinforcing the other through the mechanisms identified above. Importantly, this relationship does not imply the absence of hierarchy. Instead, the reviewed literature challenges the assumption that hierarchy and collectivistic leadership are incompatible. Hierarchical authority is consistently portrayed not as a barrier to collective governance, but as its precondition. Kummelstedt (2023) provides the empirically grounded account of this paradox. In a two-year participatory action research study of a Swedish consultancy transitioning to self-management, day-to-day decisions were genuinely distributed across all staff, yet this outcome depended entirely on the CEO unilaterally designing the procedures that replaced his own authority and using his positional power to define the terms of organizational discourse, determining which ways of thinking were legitimate, in order to make collective self-management culturally viable. Leask and Macleod (2023) offer a complementary empirical illustration. Aberdeen City Health and Social Care Partnership implemented a flat distributed leadership model from 2019, yielding measurable improvements in staff satisfaction, collaboration, and creativity. Yet both anchor organizations, the local government and the NHS health board, maintained fully hierarchical structures throughout the period of study. The coexistence of flat and hierarchical forms within the same institutional arrangement suggests that collectivistic leadership does not displace hierarchy but is embedded within it.

The necessity for hierarchy is rooted in the structural challenges of complex systems. Uhl-Bien and Arena (2018) theorize that most organizations are structurally designed for stability and efficiency, creating a default pullback to equilibrium, toward the familiar and established, even when environmental pressure demands adaptation. Adaptive space must therefore be actively created and protected against this pull. Perlak (2025), drawing on Müller's balanced leadership model, describes the same dynamic at the team level: the vertical leader facilitates team members' engagement in horizontal leadership roles, shared leadership is exercised collectively within the team, and authority subsequently returns to the vertical leader through monitoring and control, thereby completing the leadership cycle. Together, these frameworks illustrate a cyclical rather than linear relationship, demonstrating that structural conditions for collectivity must often be anchored by hierarchy. This need becomes most visible when hierarchy is removed entirely. Ingvaldsen and Rolfsen (2012) study a Norwegian manufacturing firm that successively tried rotating spokespersons and distributed leadership as alternatives to hierarchical coordination of autonomous work groups. Both failed: neither system could sustain the integral evaluation and non-routine regulation needed at the organizational level, nor distributed leadership lacked the authority to enforce decisions that compromised individual group autonomy. The authors conclude that self-management at the group level generates a coordination deficit that neither rotating representation nor distributed leadership can resolve without some residual hierarchical authority.

From a critical perspective, Barthold and colleagues (2020), drawing on Rancière's political philosophy, challenge the dominant narrative. They argue that dialogic and consensual models risk reproducing hierarchy under egalitarian language, that what appears as collective self-management may in fact be the enforcement of a particular discourse by those with the power to define the terms of participation, as in Kummelstedt's case. Most collectivistic leadership, on this reading, remains hierarchy in disguise. Their proposed alternative, dissensual leadership, operates outside dialogue and existing organizational boundaries, asserting equality through radical contestation that disrupts the existing order. The presupposition of equality, Rancière's ontological starting point, is precisely what makes hierarchy possible and what can, in moments of radical contestation, overturn it. The Argentinian worker-recuperated enterprises that Vieta (2010) describes are enacting the kind of collectivistic leadership that Barthold and colleagues theorize.

5.6 Conceptual Framework

The synthesis of the reviewed literature produced the conceptual framework presented in Figure 2. At its core is a mutually constitutive relationship between collectivistic leadership and new organizational forms, each enabling and reinforcing the other. Task complexity increases the willingness to adopt collectivistic leadership. Crisis triggers the emergence of new organizational forms, while stability is required to sustain them — a fundamental tension among the enabling conditions. Both central elements exist in relationship with hierarchical authority, which the literature reveals not as the opposite of decentralized organizations and collectivistic leadership, but as their protector and initiator. Enabling conditions, including trust, shared vision, cultural readiness, and structural stability, constitute the foundational prerequisites without which neither

collectivistic leadership nor new organizational forms can take root. Digital transformation operates bidirectionally, functioning simultaneously as external pressure that drives structural flattening and as an internal enabler that facilitates information exchange, collaboration, and social network formation. The alignment of collectivistic leadership and new organizational forms generates the structural conditions for knowledge exploration and exploitation. Collectivistic leadership primarily enables exploitation through coordination and collective problem-solving, while the autonomy embedded in flat organizational forms enables exploration. Their combination produces the conditions for continuous organizational innovation, which in turn feeds back into and reinforces the collectivistic leadership practices that sustain it.

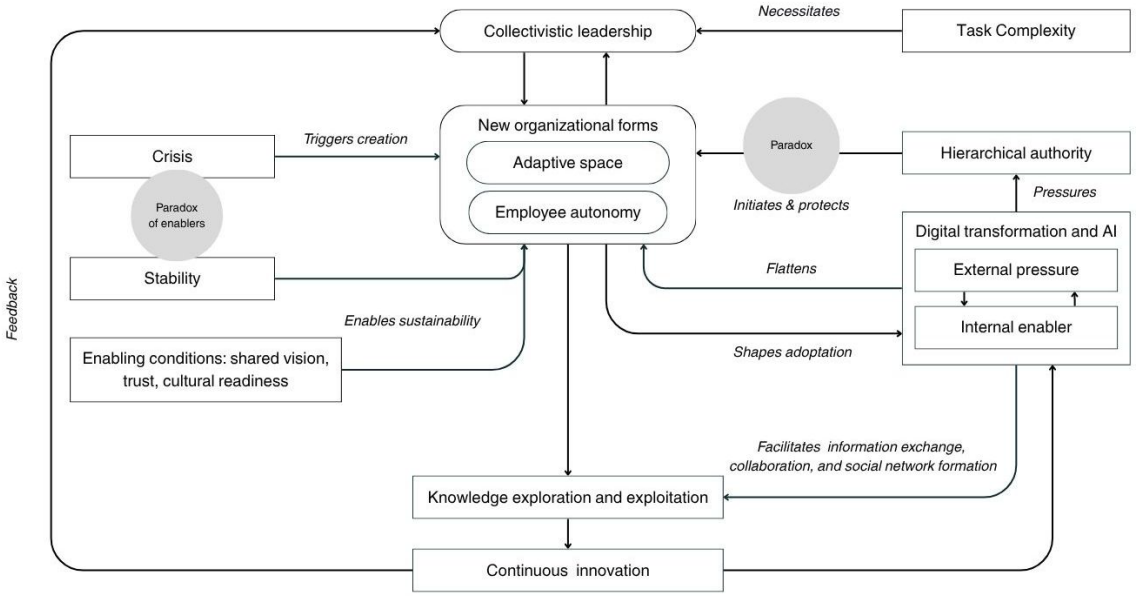


Figure 2: Conceptual framework of the links between collectivistic leadership, new organizational forms, hierarchical authority, digital transformation, and innovation

6. Discussion

The central finding of this review is that the literature treats collectivistic leadership and new organizational forms in two different ways: some authors treat them as a single phenomenon (e.g. Kummelstedt 2023; de Gennaro et al. 2023; Avon 2008), while others treat them as two distinct ones (e.g. Çakıroğlu et al. 2021; Leask and Macleod 2023; de Brún and McAuliffe 2020).This reflects different theoretical frameworks applied to the same underlying mechanism. Organization design theory examines the structural arrangements of roles, authority, and information flows that enable collective action, whereas leadership theory focuses on how influence is distributed, enacted, and sustained among organizational members.

The mechanisms linking leadership practices and organizational form remain insufficiently understood, despite their growing importance as the organizational landscape shifts. Digital transformation increasingly flattens organizational structures, making decentralization an emergent organizational consequence rather than a deliberate design choice (Zhang and Fan 2024). Organizations that combine collectivistic leadership with flat structures are better positioned to govern this transformation (Girdharry and Wynstra 2025), whereas separating organizational and technological innovation limits their innovative potential. As Generation Z enters organizations with flat structures and collective governance as baseline expectations rather than aspirations (de Gennaro *et al.,* 2023), and virtual and mobile work continue to make shared leadership and employee autonomy operational necessities (Kauffeld *et al.,* 2022), understanding how collectivistic leadership and organizational form interact has moved from a theoretical question to a governance priority.

This review carries limitations. The final set of twenty-one articles reflects the scarcity of studies theorizing collectivistic leadership and new organizational forms as a joint phenomenon, constraining the generalisability of the synthesis. The dominance of qualitative case studies means causal claims rest on observational rather than experimental evidence. Finally, innovation is operationalised inconsistently across studies, with most using process proxies rather than measuring outputs directly.

Future research should integrate organization design and leadership theory to examine collectivistic leadership and organizational form as a unified governance mechanism. Combining these perspectives offers greater insight into how knowledge transfer and adaptive capacity emerge, providing a stronger foundation for explaining innovation in contemporary organizations.

Ethics Declaration: This paper is based on a literature review of publicly available, peer-reviewed academic articles. No primary data collection involving human participants was conducted. Ethical clearance was therefore not required for this research.

AI Declaration: AI tools were used in the preparation of this paper. Specifically, Claude Sonnet 4.6 (Anthropic) was used to assist with refining language and partly improving the clarity of the text. All intellectual content, analytical judgments, theoretical interpretations, and conclusions are the authors' own. The authors take full responsibility for the integrity and accuracy of the work presented.

References

Avon, E. (2008) "Collective leadership and social logics: A new strategic change management challenge", International Journal of Learning and Intellectual Capital, Vol. 5, No. 2, pp. 241–258.

Barthold, C., Checchi, M., Imas, M. and Smolović Jones, O. (2020) "Dissensual leadership: Rethinking democratic leadership with Jacques Rancière", Organization, Vol. 28, No. 6, pp. 1–19.

Brass, D. J., Galaskiewicz, J., Greve, H. R. and Tsai, W. (2004) "Taking stock of networks and organizations: A multilevel perspective", Academy of Management Journal, Vol. 47, No. 6, pp. 795–817.

Bremer, C. (2026) "New organizational forms: Deconstructing and reconfiguring the literature", European Management Review, advance online publication.

Çakıroğlu, S. S., Caetano, A. and Costa, P. (2021) "Shared leadership, self-management and perceived team effectiveness in the military context", Military Psychology, Vol. 33, No. 5, pp. 308–319.

De Brún, A., O'Donovan, R. and McAuliffe, E. (2019) "Interventions to develop collectivistic leadership in healthcare settings: A systematic review", BMC Health Services Research, Vol. 19, No. 1, p. 72.

De Brún, A. and McAuliffe, E. (2020) "Collective leadership and safety cultures (Co-Lead): A pilot study protocol of a co-operative inquiry", BMC Research Notes, Vol. 13, No. 1.

de Gennaro, D., Briganti, P. and Abreu, A. (2023) "Investigating the organizational forms of Generation Z-driven Italian start-ups", Journal of Small Business and Enterprise Development, Vol. 30, No. 6, pp. 1129–1152.

Fairhurst, G. T., Jackson, B., Foldy, E. G. and Ospina, S. M. (2020) "Studying collective leadership: The road ahead", Human Relations, Vol. 73, No. 4, pp. 598–614.

Gastil, J. (1994) "A definition and illustration of democratic leadership", Human Relations, Vol. 47, No. 8, pp. 953–975.

Girdharry, K. and Wynstra, B. (2025) "Distributed AI leadership: The Generator as a model for faculty-led innovation", Journal of Leadership Studies, Vol. 19, No. 2.

Gonzalez, R. V. D. and de Melo, T. M. (2018) "Innovation by knowledge exploration and exploitation: An empirical study of the automotive industry", Gestão e Produção, Vol. 25, No. 1, pp. 1–15.

Gronn, P. (2002) "Distributed leadership as a unit of analysis", The Leadership Quarterly, Vol. 13, No. 4, pp. 423–451.

Heinze, A. and Weisskircher, M. (2021) "No strong leader needed? Collective leadership and organizational development in a successful new right-wing populist party", Politics and Governance, Vol. 9, No. 4, pp. 263–274.

Hong, Q. N., Fàbregues, S., Bartlett, G., Boardman, F., Cargo, M., Dagenais, P., Gagnon, M.-P., Griffiths, F., Nicolau, B., O'Cathain, A., Rousseau, M.-C., Vedel, I. and Pluye, P. (2018) "The Mixed Methods Appraisal Tool (MMAT) version 2018 for information professionals and researchers", Education for Information, Vol. 34, No. 4, pp. 285–291.

Ingvaldsen, J. A. and Rolfsen, M. (2012) "Autonomous work groups and the challenge of inter-group coordination", Human Relations, Vol. 65, No. 7, pp. 861–881.

Kauffeld, S., Tartler, D., Gräfe, H., Windmann, A.-K. and Sauer, N. C. (2022) "What will mobile and virtual work look like in the future? Results of a Delphi-based study", Gruppe. Interaktion. Organisation, Vol. 53, pp. 189–214.

Kivipõld, K. and Vadi, M. (2010) "A measurement tool for the evaluation of organizational leadership capability", Baltic Journal of Management, Vol. 5, No. 1, pp. 118–136.

Kummelstedt, C. (2023) "The role of hierarchy in realizing collective leadership in a self-managing organization", Systemic Practice and Action Research, Vol. 36, pp. 355–375.

Leask, G. and Macleod, M. (2023) "Exploring the implementation and evaluation of a distributed leadership model within a Scottish, integrated health and care context", BMJ Leader, Vol. 7, No. 2, pp. 1–6.

Martela, F. (2019) "What makes self-managing organizations novel? Comparing how Weberian bureaucracy, Mintzberg's adhocracy, and self-organizing solve basic problems of organising", Journal of Organization Design, Vol. 8, No. 1, p. 23.

Mihalache, O. R., Jansen, J. J. P., van den Bosch, F. A. J. and Volberda, H. W. (2014) "Top management team shared leadership and organizational ambidexterity: A moderated mediation framework", Strategic Entrepreneurship Journal, Vol. 8, No. 2, pp. 128–148

Morgeson, F. P., DeRue, D. S. and Karam, E. P. (2010) "Leadership in teams: A functional approach to understanding leadership structures and processes", Journal of Management, Vol. 36, No. 1, pp. 5–39.

Ospina, S. M., Foldy, E. G. and Jackson, B. (2020) "Collective dimensions of leadership: Connecting theory and method", Human Relations, Vol. 73, No. 4, pp. 441–463.
Park, S. (2025) "Charting the landscape of collectivistic leadership: A bibliometric analysis", Journal of Organizational Effectiveness: People and Performance.
Pearce, C. L., Conger, J. A. and Locke, E. A. (2008) "Shared leadership theory", The Leadership Quarterly, Vol. 19, No. 5, pp. 622–628.
Perlak, J. (2025) "Selected concepts of leadership in self-organizing teams", in Marchesi, L. et al. (Eds.), XP 2024 Workshops (LNBIP 524), Springer, pp. 209–215.
Scott, L. and Caress, A.-L. (2005) "Shared governance and shared leadership: Meeting the challenges of implementation", Journal of Nursing Management, Vol. 13, No. 1, pp. 4–12.
Somerville, M. M. and Howard, Z. (2010) "Information in context: Co-designing workplace structures and systems for organizational learning", Information Research, Vol. 15, No. 4.
Teece, D. J. (2007) "Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance", Strategic Management Journal, Vol. 28, No. 13, pp. 1319–1350.
Thompson, D. S., Harvey, A., Barnova, M. and Hane, M. (2025) "Collective leadership in collaborative practice: A qualitative secondary analysis of how plural leadership is enacted in practice", Journal of Interprofessional Care, Vol. 39, No. 5, pp. 773–781.
Torraco, R. J. (2016) "Writing integrative literature reviews: Using the past and present to explore the future", Human Resource Development Review, Vol. 15, No. 4, pp. 404–428.
Uhl-Bien, M. and Arena, M. (2018) "Leadership for organizational adaptability: A theoretical synthesis and integrative framework", The Leadership Quarterly, Vol. 29, No. 1, pp. 89–104.
Uhl-Bien, M., Marion, R. and McKelvey, B. (2007) "Complexity Leadership Theory: Shifting leadership from the industrial age to the knowledge era", The Leadership Quarterly, Vol. 18, No. 4, pp. 298–318.
Vieta, M. (2010) "The social innovations of autogestión in Argentina's worker-recuperated enterprises: Cooperatively reorganizing productive life in hard times", Labor Studies Journal, Vol. 35, No. 3, pp. 295–321.
Wallace, M. and Wray, A. (2011) Critical Reading and Writing for Postgraduates, 2nd ed., SAGE Publications, London.
Xu, X. and Xia, Z. (2025) "Bibliometric analysis on organizational innovation research based on Scopus from 2012 to 2024", Iberoamerican Journal of Science Measurement and Communication, Vol. 5, No. 1, pp. 1–19.
Yammarino, F. J., Salas, E., Serban, A., Shirreffs, K. and Shuffler, M. L. (2012) "Collectivistic leadership approaches: Putting the 'we' in leadership science and practice", Industrial and Organizational Psychology, Vol. 5, No. 4, pp. 382–402.
Zhang, X. and Fan, D. (2024) "Research on digital transformation and organizational innovation of manufacturing firms based on knowledge field", Journal of the Knowledge Economy, Vol. 15, pp. 15860–15903.

Augmentation or Attrition? Task Redistribution After a Generative AI HR Deployment

Rohini Kaninde
Clarke University, Worcester, MA, USA

rohinikaninde95@gmail.com

Abstract: Generative artificial intelligence (AI) is widely expected to reshape human resource management (HRM), yet organization-level evidence on how it redistributes work between people and machines is scarce, and debate is split between optimistic augmentation and pessimistic attrition narratives. This paper asks a narrower, answerable question: after an enterprise generative AI platform is deployed in HR, which tasks move to the machine, which remain human, and how do practitioners experience the change? We report an exploratory pre–post study of a single platform deployed across ten organizations over six months, combining anonymized operational data (more than 6,000 requisitions) with thirty-two practitioner interviews. The design is observational, with no control group, so results are reported as associations rather than causal effects. Time-to-hire fell by a median of 23% across sites (95% CI 20-26%; from about 42 to 32 days), and the volume of routine queries reaching human advisers fell by 72% (95% CI 69-75%); every site moved in the same direction (Wilcoxon signed-rank p = 0.002, matched-pairs rank-biserial r = 1.00), though with only ten sites this is indicative. Both varied across sites and accrued gradually over the six months rather than at switch-on. The platform absorbed high-volume, rule-bound tasks such as screening, scheduling, and policy queries, while judgment- and relationship-based tasks remained human. Practitioners reported reallocating time towards that relational work, alongside concerns about transparency, surveillance, and new supervisory demands. We do not observe long-run employment outcomes: no participating organization reduced HR headcount during the window. Six months is shorter than a typical restructuring cycle, and we cannot establish that augmentation, rather than attrition, is the lasting result. We therefore treat the optimistic reading as a conditional leadership choice, not a finding. Because the platform is a commercial product connected to the authors and the data are vendor-context, we disclose this relationship in full and report the study as early, transparency-qualified evidence. The contribution is empirical: a rare multi-site, mixed-methods account of task redistribution after a generative AI HR deployment, offered with explicit attention to its limits and to the governance obligations, including high-risk AI rules, that such deployments now entail.

Keywords: Generative artificial intelligence, Human resource management, Task redistribution, Workforce augmentation, Mixed-methods study, AI governance, Responsible leadership

1. Introduction

The public release of large language model tools such as ChatGPT in late 2022 moved generative AI from a specialist concern to an everyday workplace technology. HRM is unusually exposed because much HR work is high-volume, language-based, and policy-bound activity that these models handle well (Vrontis et al. 2022; Madanchian 2024).

Early discussion has been dominated by cost. IBM reports that an internal HR assistant handled more than 11.5 million employee interactions in 2024 and contributed to a roughly 40% reduction in HR operational costs over four years (IBM 2025), although this is a single company's self-reported figure. Industry and vendor surveys claim further savings, but those estimates are largely unverified, and we do not rely on them. Such headline numbers say little about what actually happens to the work.

Two questions follow. First, are the gains durable or an inflated phase of a familiar cycle, given that most organizations report little measurable financial impact from AI (MIT NANDA 2025)? Second, and our focus, how is work divided between people and machines? International evidence suggests most jobs are exposed to AI for augmentation rather than full automation (ILO 2025), and management scholarship argues that automation and augmentation are interdependent rather than opposed (Raisch and Krakowski 2021); the augmentation idea is itself well established, not new (Davenport and Kirby 2016; Daugherty and Wilson 2018).

Rather than assert which narrative is correct, we ask an answerable, organization-level question and report early evidence. Drawing on the deployment of one enterprise generative AI platform across ten organizations, we combine operational data with practitioner interviews to show which tasks move to the machine and which remain human, and how practitioners experience the shift. Our contribution is primarily empirical: organization-level, multi-site, mixed-method evidence of task redistribution, an area where measured studies are scarce (Tambe, Cappelli, and Yakubovich 2019); we also use that evidence to test and qualify the automation-augmentation paradox at the organizational level (Section 5). Because the platform is a commercial product connected to the authors, we disclose this relationship in full (see Conflict of interest) and

scope our claims accordingly. The paper reviews the literature and theory, sets out the method, reports findings, and discusses implications for HR leadership, AI governance, and the management of change.

2. Literature Review and Theoretical Framing

2.1 Generative AI in Human Resource Management

Research on AI in HRM has grown quickly. A systematic review by Vrontis et al (2022) found that intelligent technologies are reshaping recruitment, training, and performance management. Madanchian (2024) maps tools across the employee lifecycle; Venugopal et al (2024) apply topic modeling to workforce planning; and Rukadikar, Khandelwal, and Warrier (2025) trace a two-decade shift towards AI-supported hiring. The recruitment stage has the most empirical attention: Abdelhay et al (2025), in a survey of 469 professionals, link generative AI to recruitment efficiency, an effect mediated by automation level and moderated by organisational size; Mamadjanova (2025) confirms in a review that screening and chatbot tools reduce time-to-hire. Most of this work, however, is conceptual, survey-based, or single-site; organization-level evidence of how tasks are actually redistributed, and what happens to the staff affected, remains scarce (Tambe, Cappelli, and Yakubovich 2019; Cedro 2025).

2.2 Theoretical Framing

We read the deployment through four complementary lenses, because no single one suffices. At the macro level, the task-based framework of Acemoglu and Restrepo (2019) distinguishes a displacement effect, as machines take over tasks, from a reinstatement effect, as new tasks emerge in which labor holds an advantage; whether labor demand falls depends on which dominates. To explain organization-level change, the AMO framework (Appelbaum et al 2000) and Job Demands–Resources and work-design theory (Bakker and Demerouti 2007) frame how removing routine load can alter the content and quality of HR roles. Sociotechnical systems theory (Trist and Bamforth 1951) anticipates that value comes from jointly redesigning technology and work, not from technology alone. Technology acceptance theory (UTAUT; Venkatesh et al 2003) frames the trust and adoption dynamics we observe. Across these lenses, augmentation and automation are interdependent rather than alternatives (Raisch and Krakowski 2021), so our contribution is empirical rather than a claim to conceptual novelty.

2.3 Critical Perspectives and Research Questions

A critical literature warns against optimistic readings: algorithmic management can intensify work, enable surveillance, and deskill roles even as it removes drudgery (Kellogg, Valentine, and Christin 2020). We therefore treat practitioner accounts sceptically and actively seek disconfirming evidence. Against this backdrop, we ask three exploratory questions:

RQ1: What is the association between deploying the platform and HR efficiency?

RQ2: How is the division of labor between AI and HR staff reconfigured?

RQ3: What are the implications for HR leadership, AI governance, and workforce strategy?

3. Methodology

3.1 Design and Setting

This is an exploratory, pre–post study. It has no control group or counterfactual, so we report associations rather than causal effects and interpret them in light of the threats to validity outlined below. The setting is the rollout of an enterprise generative AI HR platform (anonymized for double-blind review) across 10 organizations spanning technology, financial services, healthcare, the public sector, retail, manufacturing, and other sectors, with employee counts ranging from about 1,000 to more than 20,000 (Table 2). Technically, the platform combines a large language model with retrieval-augmented generation over each organization's HR policy corpus., and a multi-agent layer that routes requests; Recruiters and advisers act as human-in-the-loop reviewers, and no candidate is rejected by the system without human review.

3.2 Data, Provenance and Protection

The quantitative strand draws on the platform's operational logs and the organisations' HR systems. For each organisation we compared a three-month pre-deployment baseline with the six-month period after go-live, covering more than 6,000 requisitions. Three measures are used: time-to-hire (elapsed days from requisition approval to offer acceptance, which differs from time-to-fill); routine query volume (the number of policy or

administrative questions reaching human advisers, a measure of channel substitution rather than of underlying demand); and containment (the share of queries resolved by the platform without escalation, computed from interaction logs). Analytically, we summarise site-level reductions as medians and means with 95% confidence intervals (t-based, and read cautiously given only ten site-level observations), test the pre-post differences with the Wilcoxon signed-rank test, and report the matched-pairs rank-biserial correlation as an effect size; to confirm that no single organisation drives the pooled result, we recompute the medians under a leave-one-site-out (jackknife) procedure. The data are owned by the platform vendor and the participating organisations; the authors extracted and analysed them, harmonising differing HR-system definitions to common constructs. Query data were processed under each organisation's data-protection basis, then aggregated and de-identified before analysis. The figures derive from the vendor's own logs and were not independently audited, a limitation we return to.

3.3 Qualitative Strand

We conducted thirty-two semi-structured interviews (three to four per site) with practitioners in recruitment, HR operations and business-partner roles. Participants volunteered in response to an open invitation and were interviewed by researchers independent of their line management; participation was confidential. An interview guide covered changes in daily work, task movement, freed time and concerns. Transcripts were coded by two researchers using a combined inductive–deductive scheme; coding disagreements were reconciled, a subset was member-checked, and we actively sought disconfirming accounts. Themes are reported with frequencies (Table 3) but treated as self-reported perceptions subject to social-desirability pressure, particularly given the employer–vendor context.

3.4 Threats to Validity

Several threats temper interpretation. Sites and interviewees self-selected; adopters differ from non-adopters, and we are not aware of abandoned deployments in the sample, which risks survivorship bias. Gains may reflect concurrent process redesign rather than the platform alone. The mismatched three- and six-month windows expose the metrics to seasonality, and awareness of the study may have produced Hawthorne effects. Self-report and the vendor relationship (see Conflict of interest) may bias results in a favourable direction. We foreground these threats here, in the design, rather than confining them to a closing paragraph.

3.5 Governance of the Deployment

Recruitment AI of this kind is classified as high-risk under the EU AI Act (European Union 2024, Annex III), with obligations enforceable from August 2026, and is subject to Article 22 of the GDPR on solely-automated decisions (European Union 2016). In practice the deployment implemented several governance mechanisms: a human-in-the-loop review in which a named recruiter reviews every AI-generated shortlist and no candidate is rejected without human sign-off (the primary Article 22 safeguard); retention of decision logs and model-output audit trails to support the Act's logging and traceability duties; retrieval-augmented answers grounded in each organisation's own policy corpus to aid transparency and contestability; a documented data-protection basis and de-identification step for query data; and defined escalation paths for contested or low-confidence cases. Two obligations, however, were only partially met during the window. Systematic bias and adverse-impact testing of the screening tool, for example selection-rate or four-fifths-rule analysis across protected groups, was not performed uniformly across sites, and no formal fairness metric was tracked over time; nor was a full data-protection impact assessment completed everywhere. We report these gaps as findings and governance gaps, not as strengths, and return to them below as the central precondition for responsible scaling.

4. Findings

4.1 Operational Impact

Time-to-hire fell from a pooled mean of about 42 days before deployment to about 32 days afterwards, a median reduction of 23% across the ten sites (95% CI 20-26%; range 17–28%, SD 3.8), while routine queries reaching human advisers fell by a median of 72% (95% CI 69-75%; range 65–78%, SD 4.1) (Figure 1). A Wilcoxon signed-rank test across the ten sites indicated the pre–post differences were unlikely to be due to chance (n = 10 sites, exact two-sided p = 0.002), with every site moving in the same direction; the corresponding matched-pairs rank-biserial correlation is r = 1.00, which reflects the uniform direction of change rather than the size of any causal effect. With only ten site-level observations these inferential statistics are indicative rather than definitive, and the reductions proved robust in a leave-one-site-out check

(Section 4.2). The baseline is broadly in line with industry time-to-fill benchmarks of 36–44 days (SHRM 2025), though that is a different construct and the comparison is approximate. Table 1 summarises how task handling changed.

Table 1: HR tasks before and after platform deployment

HR task	Before deployment	After deployment	Headline change
CV screening and shortlisting	Manual, recruiter-led	AI-assisted; recruiter reviews shortlist	Time-to-hire −23% (median)
Interview scheduling	Manual coordination	Automated by the platform	Coordination time reduced
Policy and FAQ queries	Routed to human advisers	AI self-service; complex cases escalated	Routine queries to humans −72%
Onboarding, coaching, conflict, culture	Human, time-constrained	Human (unchanged in scope)	Self-reported capacity reallocated



Figure 1: Operational changes associated with the platform (indexed to pre-deployment baseline = 100; medians across ten sites)

4.2 Variation Across Sites

The direction of change was common to all ten sites, but its magnitude varied (Figure 2, Table 2): time-to-hire reductions ranged from 17% to 28%, query reductions from 65% to 78%, and containment from 65% to 83% (mean 74%, 95% CI 71-79%). A leave-one-site-out (jackknife) analysis confirmed the pooled result is not driven by any single organisation: the median time-to-hire reduction stayed within 22-24% and the median query reduction within 71-73% as each site was removed in turn. We therefore claim consistency of direction, not uniformity of magnitude, and we do not claim the sites are representative, since they are self-selected adopters. Per-site denominators are reported in Table 2; de-identified site-level data are available on reasonable request (see Data availability).

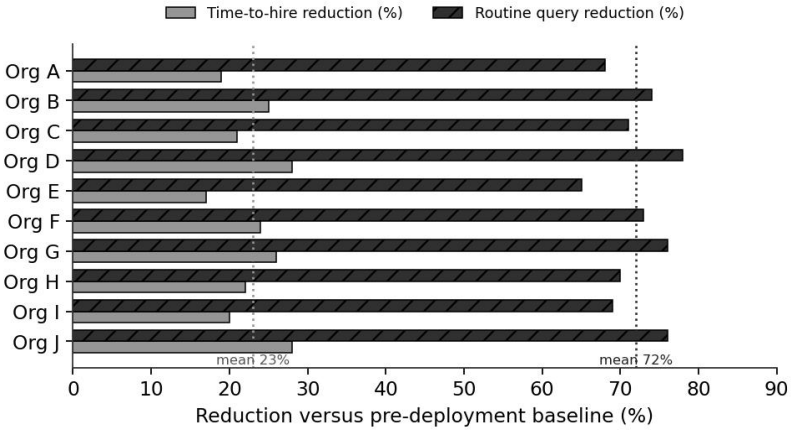


Figure 2: Reductions in time-to-hire and routine query volume by organisation (dotted lines show pooled means)

Table 2: Results by organisation (anonymised; n = hires processed in the window)

Org	Sector	Size	Hires (n)	TTH ↓	Query ↓	Contain.
A	Technology	5–20k	720	19%	68%	69%
B	Financial services	>20k	1,150	25%	74%	77%
C	Healthcare	5–20k	540	21%	71%	72%
D	Professional services	1–5k	210	28%	78%	83%
E	Public sector	>20k	980	17%	65%	65%
F	Retail	5–20k	610	24%	73%	75%
G	Telecommunications	>20k	1,040	26%	76%	79%
H	Manufacturing	5–20k	500	22%	70%	71%
I	Energy	1–5k	180	20%	69%	67%
J	Logistics	5–20k	470	28%	76%	78%
Mean / total	n/a	n/a	6,400	23%	72%	74%

4.3 Adoption Trajectory

The month-by-month trajectory is the study's most distinctive observation (Figure 3). Routine query volume fell fastest, dropping by about half within three months as employees learned to use self-service, then levelling off; time-to-hire declined more slowly and steadily as recruiters built confidence in AI-assisted shortlisting and adjusted their workflows. This lag is consistent with the idea that value follows the redesign of work rather than the moment of switch-on, but it is equally consistent with ordinary learning curves or selection effects, and the present design cannot distinguish these. The pattern nonetheless suggests that the human and process changes around the tool, not the tool alone, pace any benefits.

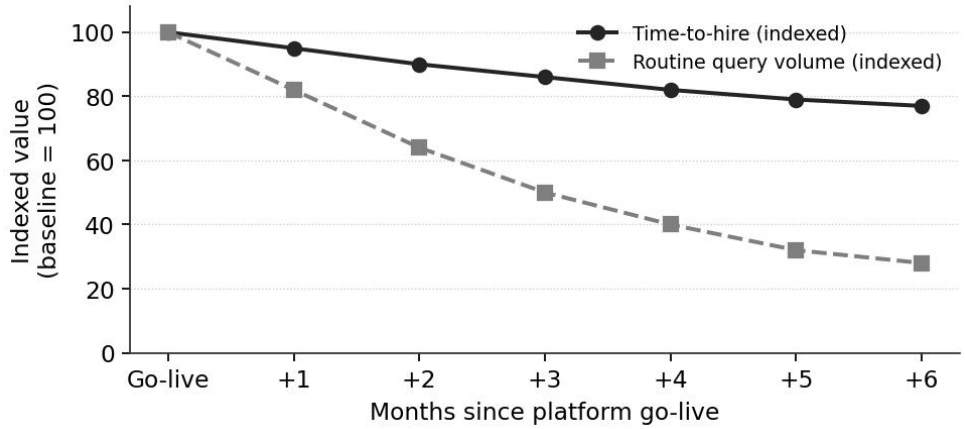


Figure 3: Time-to-hire and routine query volume over the first six months of use (indexed)

4.4 The Reconfigured Division of Labour

The platform did not absorb HR work evenly. It took over high-volume, rule-bound tasks such as screening and shortlisting, scheduling, request routing and standardised policy answers, while tasks depending on judgement, trust and relationship remained human: onboarding, coaching, conflict resolution and the work of sustaining culture. In Acemoglu and Restrepo's (2019) terms, displacement fell on routine tasks while the reinforced tasks are those in which labour retains an advantage. Practitioners' self-reported time allocation shifted accordingly (Figure 4): in a time-allocation question put to the thirty-two interviewees, estimated time on transactional work fell from about 55% to 28%, while relational work rose from 18% to 35% and strategic or advisory work increased from 7% to 15%. We define transactional work as rule-based administration, relational work as direct people support, and strategic work as planning and advisory activity. These are self-reported estimates from a small sample, not time-and-motion measurements; the six-month swing is large and should be read with caution.

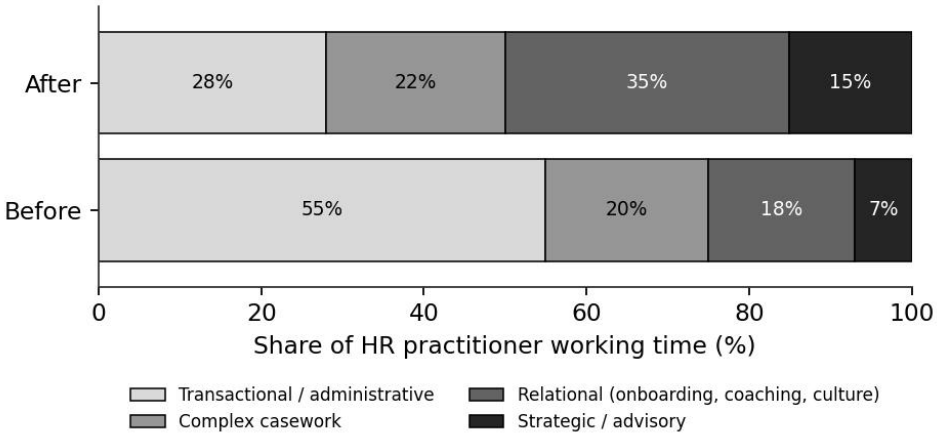


Figure 4: Self-reported reallocation of HR practitioner time before and after deployment (n = 32)

4.5 Practitioner Experience

Six themes recurred (Table 3). Practitioners most often described regaining time for engagement and a shift towards complex, judgement-based work, and many reported needing new skills to supervise and correct the system. The accounts were not uniformly positive. A distinct minority raised concerns consistent with the critical literature on algorithmic management (Kellogg, Valentine and Christin 2020): that the system could be used to monitor how quickly staff close cases, that expectations simply rose to fill the freed time, and that some screening craft was being lost. An initial fear of redundancy featured in several interviews; it eased for many as roles expanded but did not disappear, and we do not read it as resolved. These are perceptions, and the employer–vendor context makes social-desirability bias a real risk; we report the disconfirming accounts precisely because the setting predisposes towards favourable ones. The positive themes align with work linking employee–AI collaboration to engagement when work is redesigned (Sun, Hu and Su 2026; Watermann, Kubowitsch and Lermer 2025), while the critical accounts caution against treating that outcome as inevitable (Viljakainen et al 2025).

Table 3: Themes from interviews with HR practitioners (n = 32)

Theme	Count	Illustrative quotation
Time released for candidate and employee engagement	21	"I finally have time to talk to candidates instead of chasing paperwork."
Shift towards complex, judgement-based work	18	"The cases that reach me now are the ones that genuinely need a person."
New supervisory and AI-related skills required	15	"We had to learn to check and correct the system, and that is a new part of the job."
Transparency as a condition for trust	14	"Once we explained how the assistant reached its answers, people trusted it."
Initial fear of redundancy, eased but not removed	12	"People feared it would replace us; for many that eased as roles grew, but the worry never fully went."
Concern about surveillance, intensification or deskilling	8	"There's unease it tracks how fast we close cases, and that some screening craft is being lost."

5. Discussion

Within these ten organisations, the platform was associated with a redistribution of HR work: routine tasks moved to the machine while relational tasks remained and, in self-report, expanded. Read through the task-based lens this resembles reinstatement keeping pace with displacement (Acemoglu and Restrepo 2019), and through AMO and work-design theory it resembles enrichment of HR roles (Appelbaum et al 2000; Bakker and Demerouti 2007). But these are six-month associations from self-selected sites, not evidence that augmentation is the lasting equilibrium; automation and augmentation remain interdependent (Raisch and Krakowski 2021). To be explicit about inference: because the design has no control group or counterfactual, these results identify associations between deployment and subsequent change, not causal effects; concurrent process redesign, ordinary learning curves, seasonality, and selection into adoption remain equally plausible

explanations, and we use the language of movement and redistribution descriptively rather than causally throughout.

Theoretical contribution. Beyond applying these lenses, we intend a specific contribution to theory. The automation-augmentation paradox has largely been argued conceptually or at the level of the individual task (Raisch and Krakowski 2021); our multi-site evidence adjudicates it at the organisational level, showing displacement of routine tasks and reinstatement of relational ones co-occurring within the same function and time window rather than as opposing trajectories. In doing so we make explicit a boundary condition that the task-based account (Acemoglu and Restrepo 2019) leaves open: reinstatement did not follow automatically from deployment but tracked complementary work redesign, which connects the sociotechnical premise (Trist and Bamforth 1951) to the empirical '10-20-70' pattern and reframes augmentation as a contingent, design-dependent outcome rather than a property of the technology. This is a scope condition and an organisational-level test of existing theory rather than a wholly new construct, and we state it as such.

The gradual trajectory speaks to why so many AI programmes show little measurable impact (MIT NANDA 2025). Industry analyses of AI transformation (the '10-20-70' rule) hold that around 70% of the effort needed to capture value lies in people and process change rather than in the algorithm or infrastructure (BCG 2026). Our data are consistent with this as a hypothesis: benefits tracked the redesign of work, not the switch-on. We cannot demonstrate the link, however, because we did not compare redesigned with non-redesigned sites.

For a governance audience the implications are concrete. Because recruitment AI is high-risk under the EU AI Act (European Union 2024) and engages Article 22 of the GDPR (European Union 2016), deployments require documented human oversight, logging and, critically, bias and adverse-impact testing of screening tools. Practically this means routine measurement of selection rates and outcomes across protected groups (for example against the four-fifths rule), pre-deployment and periodic fairness audits, model and data documentation, and a completed data-protection impact assessment, with the results fed back into model configuration. Our sites relied on human-in-the-loop review and logging but had not systematically implemented this fairness testing; closing that gap is a precondition for responsible scaling, not an optional extra (Taherdoost 2025; Sony et al 2025; Alameer 2024).

Finally, the claim that efficiency can fund new, AI-enabled roles rather than redundancies is a recommendation, not a finding: we measured neither new roles created nor reskilling budgets, and macro projections show large gross job losses alongside larger gross gains, with a contested net (WEF 2025; Goldman Sachs 2025). What our study supports is narrower: that freed capacity exists and, within the window, was redirected towards higher-value work. Whether leaders convert it into capability or into headcount reduction is a strategic and governance choice this evidence cannot make for them.

A final limitation warrants critical reflection rather than mere disclosure. The platform is a product of the authors' employer, the participating organisations are its customers, and the operational figures originate from vendor-owned systems that were not independently audited. Each of these could bias the findings in a favourable direction, through identifiable mechanisms: selection, because organisations that adopted and persisted with the platform are unlikely to represent those that trialled and abandoned it; measurement, because vendor-defined log constructs may flatter the tool and could not be externally verified; and social desirability, because interviewees are employees of customers speaking about their supplier. We have tried to counter these tendencies by scoping claims to the data, reporting associations rather than effects, foregrounding threats to validity in the design, actively seeking disconfirming interview accounts, and offering de-identified site-level data for inspection. These mitigations reduce but cannot remove the risk; accordingly the results should be read as vendor-context, transparency-qualified evidence, and independent, third-party replication and audit are needed before the pattern is generalised.

6. Conclusion

We asked how generative AI redistributes HR work. In an exploratory, pre–post study of one platform across ten organisations over six months, deployment was associated with a 23% median fall in time-to-hire and a 72% fall in routine queries reaching advisers, accompanied by the automation of routine tasks and the reinforcement of relational ones; practitioners reported redirecting freed time to higher-value work, with notable concerns about surveillance, intensification and trust. The contribution is a rare, if early, organization-level account of task redistribution. Its limits are intrinsic: a single vendor-connected platform, self-selected sites, self-report, a six-month window too short to observe employment outcomes, and operational data that were not independently audited. We therefore frame 'augmentation over attrition' not as a result but as a

conditional choice that depends on leadership, governance and reskilling. Future work should use longitudinal, multi-platform and ideally controlled designs, compare redesigned with non-redesigned sites, incorporate applicant perspectives, and independently replicate and audit deployed systems for bias.

7. Conflict of Interest, Funding, and Data

The enterprise generative AI platform evaluated here is a commercial product developed by the authors' employer, and several of the ten participating organizations are clients of that employer. The research was conducted as part of the authors' employment and received no external funding. The operational data are owned by the vendor and the participating organizations; the authors extracted and analyzed them. The findings are commercially favorable to the platform, and readers should weigh them against this relationship; we have sought to mitigate it by scoping claims to the data, reporting results as associations, foregrounding limitations, and offering data for inspection. We accordingly encourage independent, third-party replication and audit of both the operational figures and the screening tool, and we present the findings as vendor-context evidence to be weighed on those terms.

8. Data Availability and Independence

De-identified, aggregated per-site pre/post values and denominators are available from the authors on reasonable request. The operational figures derive from the platform's own logs and were not subject to an independent third-party audit; this constrains their evidential weight and is stated as a limitation.

Ethics Declaration: Participation in interviews was voluntary and based on written informed consent; interviews were conducted by researchers independent of participants' line management, responses were anonymized, and no identifiable data were shared with employers, in order to manage the employee–employer–vendor power dynamic. Operational data were aggregated and de-identified.

AI Declaration: Generative AI tools such as Claude and ChatGPT were used to support literature searching, structuring, and language editing in preparing this paper; all AI-generated text was reviewed, verified, and edited by the authors, who are responsible for all content. Separately, and distinct from this writing assistance, the study analyses data from a commercial AI platform connected to the authors; that relationship and the ownership of the operational data are disclosed above under Conflict of interest.

References

Abdelhay, S., AlTalay, M.S.R., Selim, N., Altamimi, A.A., Hassan, D., Elbannany, M. and Marie, A. (2025) "The impact of generative AI (ChatGPT) on recruitment efficiency and candidate quality: the mediating role of process automation level and the moderating role of organizational size", *Frontiers in Human Dynamics*, Vol 6, article 1487671. doi:10.3389/fhumd.2024.1487671.

Acemoglu, D. and Restrepo, P. (2019) "Automation and new tasks: how technology displaces and reinstates labor", *Journal of Economic Perspectives*, Vol 33, No. 2, pp 3–30. doi:10.1257/jep.33.2.3.

Alameer, A. (2024) "A comprehensive review of AI techniques for addressing algorithmic bias in job hiring", *AI*, Vol 5, No. 1, pp 383–404. doi:10.3390/ai5010019.

Appelbaum, E., Bailey, T., Berg, P. and Kalleberg, A.L. (2000) *Manufacturing Advantage: Why High-Performance Work Systems Pay Off*, Cornell University Press, Ithaca, NY.

Bakker, A.B. and Demerouti, E. (2007) "The job demands-resources model: state of the art", *Journal of Managerial Psychology*, Vol 22, No. 3, pp 309–328. doi:10.1108/02683940710733115.

Boston Consulting Group (2026) *AI Transformation Is a Workforce Transformation*, BCG, Boston. Available at https://www.bcg.com/publications/2026/ai-transformation-is-a-workforce-transformation (Accessed 26 June 2026).

Cedro, T.L. (2025) "The ethical role of generative artificial intelligence in modern HR decision-making: a systematic literature review", *European Journal of Business and Management Research*, Vol 10, No. 1, pp 44–55. doi:10.24018/ejbmr.2025.10.1.2535.

Daugherty, P.R. and Wilson, H.J. (2018) *Human + Machine: Reimagining Work in the Age of AI*, Harvard Business Review Press, Boston, MA.

Davenport, T.H. and Kirby, J. (2016) *Only Humans Need Apply: Winners and Losers in the Age of Smart Machines*, Harper Business, New York.

European Union (2016) *Regulation (EU) 2016/679 (General Data Protection Regulation)*, Official Journal of the European Union, L 119, pp 1–88. Available at https://eur-lex.europa.eu/eli/reg/2016/679/oj (Accessed 26 June 2026).

European Union (2024) *Regulation (EU) 2024/1689 laying down harmonised rules on artificial intelligence (Artificial Intelligence Act)*, Official Journal of the European Union, L 2024/1689. Available at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202401689 (Accessed 26 June 2026).

Goldman Sachs (2025) *How Will AI Affect the Global Workforce?*, Goldman Sachs, New York. Available at https://www.goldmansachs.com/insights/articles/how-will-ai-affect-the-global-workforce (Accessed 26 June 2026).

IBM (2025) *IBM AskHR*, IBM Case Studies, Armonk, NY. Available at https://www.ibm.com/case-studies/ibm-askhr (Accessed 26 June 2026).

International Labour Organization (2025) *Generative AI and Jobs: A 2025 Update*, ILO, Geneva. Available at https://www.ilo.org/publications/generative-ai-and-jobs-2025-update (Accessed 26 June 2026).

Kellogg, K.C., Valentine, M.A. and Christin, A. (2020) "Algorithms at work: the new contested terrain of control", *Academy of Management Annals*, Vol 14, No. 1, pp 366–410. doi:10.5465/annals.2018.0174.

Madanchian, M. (2024) "From recruitment to retention: AI tools for human resource decision-making", *Applied Sciences*, Vol 14, No. 24, article 11750. doi:10.3390/app142411750.

Mamadjanova, K. (2025) "Role of artificial intelligence in employee recruitment: systematic review and future research directions", *Discover Global Society*, Vol 3, No. 1, article 99. doi:10.1007/s44282-025-00246-w.

MIT NANDA (2025) *The State of AI in Business 2025*, Massachusetts Institute of Technology, Cambridge, MA. Available at https://mlq.ai/media/quarterly_decks/v0.1_State_of_AI_in_Business_2025_Report.pdf (Accessed 26 June 2026).

Raisch, S. and Krakowski, S. (2021) "Artificial intelligence and management: the automation–augmentation paradox", *Academy of Management Review*, Vol 46, No. 1, pp 192–210. doi:10.5465/amr.2018.0072.

Rukadikar, A., Khandelwal, K. and Warrier, U. (2025) "Reimagining recruitment: traditional methods meet AI interventions – a 20-year assessment (2003–2023)", *Cogent Business & Management*, Vol 12, No. 1, article 2454319. doi:10.1080/23311975.2025.2454319.

SHRM (2025) *2025 Recruiting Benchmarking Report*, Society for Human Resource Management, Alexandria, VA. Available at https://www.shrm.org/topics-tools/research (Accessed 26 June 2026).

Sony, M.M.A.A.M., Amin, M.B., Ashraf, A., Islam, K.M.A., Debnath, N.C. and Debnath, G.C. (2025) "Bias in AI-driven HRM systems: investigating discrimination risks embedded in AI recruitment tools and HR analytics", *Social Sciences & Humanities Open*, Vol 12, article 102082. doi:10.1016/j.ssaho.2025.102082.

Sun, L., Hu, R. and Su, H. (2026) "Unlocking human potential in the AI age: how employee-AI collaboration transforms work engagement through dual psychological pathways", *Frontiers in Psychology*, Vol 16, article 1705671. doi:10.3389/fpsyg.2025.1705671.

Taherdoost, H. (2025) "Ethical theories, governance models, and strategic frameworks for responsible AI adoption and organizational success", *Frontiers in Artificial Intelligence*, Vol 8, article 1619029. doi:10.3389/frai.2025.1619029.

Tambe, P., Cappelli, P. and Yakubovich, V. (2019) "Artificial intelligence in human resources management: challenges and a path forward", *California Management Review*, Vol 61, No. 4, pp 15–42. doi:10.1177/0008125619867910.

Trist, E.L. and Bamforth, K.W. (1951) "Some social and psychological consequences of the longwall method of coal-getting", *Human Relations*, Vol 4, No. 1, pp 3–38.

Venkatesh, V., Morris, M.G., Davis, G.B. and Davis, F.D. (2003) "User acceptance of information technology: toward a unified view", *MIS Quarterly*, Vol 27, No. 3, pp 425–478. doi:10.2307/30036540.

Venugopal, M., Madhavan, V., Prasad, R. and Raman, R. (2024) "Transformative AI in human resource management: enhancing workforce planning with topic modeling", *Cogent Business & Management*, Vol 11, No. 1, article 2432550. doi:10.1080/23311975.2024.2432550.

Viljakainen, A., Silmukari, J., Roto, V., Čaić, M. and Aromaa, S. (2025) "AI and the future of industrial work: a framework for enhancing employee experience from satisfaction to flourishing", *Behaviour & Information Technology*, pp 1–13. doi:10.1080/0144929X.2025.2596889.

Vrontis, D., Christofi, M., Pereira, V., Tarba, S., Makrides, A. and Trichina, E. (2022) "Artificial intelligence, robotics, advanced technologies and human resource management: a systematic review", *The International Journal of Human Resource Management*, Vol 33, No. 6, pp 1237–1266. doi:10.1080/09585192.2020.1871398.

Watermann, L., Kubowitsch, S. and Lermer, E. (2025) "AI and work design: a positive psychology approach to employee well-being", *Gruppe. Interaktion. Organisation. Zeitschrift für Angewandte Organisationspsychologie (GIO)*, Vol 56, No. 2, pp 311–320. doi:10.1007/s11612-025-00806-3.

World Economic Forum (2025) *The Future of Jobs Report 2025*, World Economic Forum, Geneva. Available at https://www.weforum.org/publications/the-future-of-jobs-report-2025/ (Accessed 26 June 2026).

Managing Integrity or Reporting Compliance? Analysing Integrity Plans as Organisational Instruments in Romanian Public Administration

Alexandra Mirela Kiș, Mihaela Apostol and Teodor Iulian Gheorghe
National University of Political Studies and Public Administration, Bucharest, Romania

kismirela1808@gmail.com
mihaelaapostol@hotmail.com
gh_teodor@gmail.com

Abstract: Public integrity has become a central concern in contemporary governance, with increasing emphasis placed on the ability of public institutions to move beyond formal compliance and foster values-based ethical environments. Within national anti-corruption strategies, integrity plans operate as institutional instruments through which integrity requirements are translated into organisational practice. This paper examines the extent to which integrity plans developed by Romanian public institutions operationalise public integrity through compliance-based or values-based approaches, building on the distinction advanced by the Organisation for Economic Co-operation and Development between rule-based and values-based integrity strategies. Within this framework, the study positions integrity plans as intermediary instruments that connect strategic anti-corruption frameworks with institutional practices. The research adopts a document analysis of a purposive sample of five entities, comprising central public institutions, a regulatory authority, a local government entity and a state-owned enterprise. The sample is selected according to institutional type, exposure to corruption risks and the public availability of the analysed integrity plans. The study is exploratory in scope and examines the formal design of integrity measures within the plans. The analysis follows four stages: identifying integrity plans within the 2021-2025 strategic cycle, extracting integrity measures, coding these measures according to their operational orientation, compliance-based or values-based, and examining the associated indicators and verification mechanisms. The paper treats integrity plans as formal documents in which institutions articulate how integrity is to be operationalised at organisational level. By analysing the balance between compliance-oriented and values-oriented measures, the study contributes to a clearer understanding of how integrity is formally designed within Romanian public administration. The contribution of the paper lies in conceptualising integrity plans as a distinct analytical entry point for understanding the relationship between formal governance frameworks and organisational practices. In doing so, it highlights the extent to which the formal design of integrity instruments remains anchored in compliance or moves towards more substantive, values-driven models, with implications for public sector governance and integrity policy design.

Keywords: Public integrity, Integrity plans, Compliance-based approach, Values-based approach, Anti-corruption strategy, Romanian public administration

1. Introductory Remarks

The fight against corruption is not an exclusive attribute of modernity (Kroeze, Vitória & Geltner, 2017). Philosophers such as Plato, Aristotle and Machiavelli addressed this phenomenon, framing it as the exercise of power by rulers in pursuit of their own interest at the expense of the common good (Miller, 2023). Although the language used to describe the phenomenon has become more precise, its underlying meaning has remained broadly constant. International organisations today converge on a similar formulation. Transparency International (n.d.a) and the World Bank both define corruption as “the abuse of entrusted power for private gain” (Bajpai & Myers, 2020). Corruption has remained on the agenda because of its effects, which include the erosion of public trust, the inefficient management of public resources and constraints on economic growth (OECD, 2026; Bajpai & Myers, 2020).

These effects have led states to develop national responses to corruption. Romania joined this effort in 2001 with the adoption of its first National Anti-Corruption Strategy, a programmatic document setting out measures to prevent and reduce corruption at the national level (Transparency International Romania, 2012). The strategies adopted in the following decade operated within a paradigm centred on the detection, control and sanctioning of corruption. Over time, however, this paradigm came to be regarded as insufficient. The Organisation for Economic Co-operation and Development (OECD) consolidated this concern in 2017 through the Recommendation on Public Integrity, proposing “a strategic and sustainable response to corruption […] public integrity” (OECD, 2017).

Romanian strategies adopted in subsequent cycles followed the same direction, introducing prevention-oriented measures alongside existing control-based ones. Within this trajectory, the most recent strategy, covering the period 2021-2025, includes integrity plans as instruments through which Romanian public

institutions translate the requirements of the national strategy into measures adapted to their own organisational context.

These instruments form the object of the present paper. The paper examines how public integrity is articulated within the integrity plans adopted by Romanian public institutions, through the measures included in these documents. This reading is informed by the distinction the OECD (2020) draws between rule-based and values-based approaches in the Public Integrity Handbook, where it recommends a balance between the two as the basis for any integrity strategy. Although integrity plans are part of the Romanian strategic architecture, they have not been examined as a research object in their own right through this distinction. The paper addresses this gap by asking whether the plans, as formally designed, function as instruments of organisational integrity management in the sense advanced by the OECD (2020), or as documents through which institutions discharge their obligations under the national strategy.

The remainder of the paper develops the theoretical background, outlines the research design, presents the findings and discusses the implications, limitations and directions for future research.

2. Theoretical Background

The literature distinguishes between multiple forms of integrity, and the generic use of the term carries certain risks. As Audi & Murphy (2006) observe, “when integrity is conceived as morally sound character, it has at least as many facets as there are moral virtues”. The breadth of the term creates the possibility for individuals to invoke moral standards that serve particular interests, which makes it necessary to associate integrity with specific virtues such as honesty or fairness (Audi & Murphy, 2006). Beyond the general meaning of integrity as “the quality of being whole and complete” (Cambridge Dictionary, n.d.), the public sector has developed a more delimited understanding of the concept, anchored in the protection of the public interest. Transparency International (n.d.b) identifies integrity with adherence, at both institutional and individual levels, to a set of ethical standards and principles. In the field of governance, the OECD has offered one of the most influential definitions, framing public integrity as “the consistent alignment of, and adherence to, shared ethical values, principles and norms for upholding and prioritising the public interest over private interests in the public sector” (OECD, 2017). This definition frames integrity as a positive standard for public action.

Once integrity is understood in these terms, the question of how it is to be managed within organisations becomes central. Two main approaches have been distinguished in the literature. Paine (1994) was among the first to articulate this distinction, contrasting a compliance-based strategy with an integrity-based strategy. The compliance-based strategy seeks to prevent, detect and sanction misconduct by aligning individual behaviour with externally imposed rules. Its underlying model is one of deterrence, where individuals are conceived as rational actors guided by material self-interest. By contrast, the integrity-based strategy rests on the premise that individuals are social actors whose conduct is shaped by values, ideals and the influence of peers, and that ethical behaviour is sustained by internal commitment rather than by external constraints alone. The two strategies are not mutually exclusive. Integrity-based initiatives typically retain compliance components such as codes of conduct, training and audits, but embed them within a broader framework oriented towards responsibility and self-governance (Paine, 1994).

The OECD (2020) has incorporated this distinction into its policy documents, presenting the balance between rule-based and values-based approaches as a central challenge for integrity strategies. This balance is important because it enables an organisational environment that not only discourages misconduct but also encourages ethical conduct (OECD, 2020). The two approaches are therefore best understood as complementary, since compliance and integrity can reinforce one another through positive synergies (Calderón, Piñero & Redín, 2018). A balanced integrity strategy combines mechanisms aimed at preventing and limiting misconduct with measures that strengthen moral awareness and ethical conduct, since both rule-based and values-based strategies are relevant for reducing violations and for supporting awareness (Huberts, 2018).

The complementarity of the two approaches is well established at the level of principles. Less attention has been paid, however, to how this balance materialises within the instruments through which integrity policies are implemented. In practice, integrity reforms have often concentrated on policies, procedures and control institutions added on top of the existing institutional architecture. The result, over time, has been a crowded organisational environment in which public organisations consume resources to respond to obligations of formal compliance rather than to integrate integrity, understood as a value, into institutional practices (Evans, 2012). Evans (2012) refers to this tension as the integrity paradox, the dissonance between formal reform,

composed of rules, codes and procedures, and the degree to which norms and values are internalised at the organisational level.

This tension also appears in the literature on organisational integrity. Kayes, Stirling & Nielsen (2007) describe this construction as “an enormous task”, since “no one-size-fits-all program exists” that can be transferred across organisations. Kirby (2021) takes the argument further by proposing an “institution-first” approach, based on the idea that public officials “embody” the institutions within which they operate. From this perspective, organisational integrity is the capacity of an institution to pursue its purpose in accordance with the commitments it has assumed, while the integrity of those acting within the institution is the disposition to support that institutional ideal (Kirby, 2021).

This difficulty makes the instruments through which national integrity strategies are translated into organisational measures relevant. One such instrument, central to the present study, is the integrity plan, a document through which a public institution sets out the measures it has identified as remedies for the corruption risks present within its activity (Government of Romania, 2021). These instruments must be situated within the broader evolution of Romania’s anti-corruption framework, which developed in close connection with the country’s European Union accession process. During this period, concerns were raised at European level regarding the need to strengthen measures against corruption, including within public administration (Commission of the European Communities, 1997). In this context, Romania requested a diagnostic study from the World Bank, whose findings informed the elaboration of the first National Anti-Corruption Strategy in 2001. Five further strategies followed, the most recent of which, covering the period 2021-2025, consolidates integrity plans as instruments. Although integrity plans are part of the Romanian strategic architecture, they have not yet been examined as a research object in their own right through the rule-based and values-based distinction set out by the OECD (2020). The remainder of the paper takes up this examination.

3. Research Methodology

This study examines how public integrity is articulated within the integrity plans of Romanian public institutions. The research is framed as an exploratory study, focused on identifying initial patterns in how integrity is articulated within these documents, rather than supporting statistical inference. The analysis uses the OECD distinction between rule-based and values-based approaches to integrity (OECD, 2020) to classify the measures included in the plans, not to assess the overall integrity orientation or integrity culture of the institutions that adopted them.

On this basis, the research question is whether the integrity plans analysed operationalise public integrity through compliance-based or values-based measures. In line with this question, the working hypothesis is that Romanian integrity plans rely more on compliance-based measures than on values-based ones.

To address this question, the study uses document analysis. Integrity plans are documents in which each institution sets out the measures it has identified as remedies for its corruption risks. For each measure, the plan includes indicators that track its implementation and sources of verification through which implementation is confirmed. The content of an integrity plan may follow from regulatory requirements, from templates provided by the national strategy or from arrangements adopted by the institution to comply with strategic obligations. The analysis therefore examines the formal design of integrity instruments as set out in the plans.

The sample comprises five public sector entities in Romania, selected to reflect institutional variation rather than statistical representativeness. Three criteria guided the selection. First, the entities had to belong to different institutional types. Second, each entity had to be exposed to corruption risks through its activity. Third, the integrity plan of each entity had to be publicly available on its official website. The five entities are presented in Table 1.

Table 1: Sample of public sector entities

Entity	Institutional type	Sector
General Secretariat of the Government	Administrative support body of the Government	Technical, legal and organisational support for government activity
Ministry of Investments and European Projects	Line ministry	Coordination of investments and projects
National Energy Regulatory Authority	Independent regulatory authority	Regulation of the energy market
Bucharest City Hall	Local public authority	Local public administration of Romania's capital city
Hidroelectrica S.A.	State-owned enterprise	Electricity production and system services in the energy sector

The five entities operate within different institutional settings, which makes it possible to examine the orientation of integrity measures across institutional types within a single national strategic cycle. The logic of the analysis follows what Yin (2013) terms analytic generalisation, understood as the extraction of a more abstract level of ideas from case study findings that may inform the understanding of integrity plans as organisational instruments beyond the specific cases studied. The findings describe the five integrity plans analysed, and the patterns identified across these cases are intended to contribute to a broader understanding of how such instruments operate, rather than to support statistical inference about integrity plans across Romanian public administration as a whole.

The documents analysed are the integrity plans adopted by the five entities for the 2021-2025 strategic cycle. The plans were retrieved from the official websites of the respective entities in May 2026 and correspond to the versions publicly available at that time. Implementation reports were excluded because the research question concerns the design of integrity measures rather than their subsequent implementation, and because such reports were not consistently available across the five entities. The integrity plan of Hidroelectrica S.A. includes an annex applying OECD guidelines on internal control, ethics and compliance, in line with the requirement of the National Anti-Corruption Strategy that state-owned enterprises incorporate such guidelines. The annex does not follow the structure of the main body of the plan, as it lists implementation instruments rather than performance indicators, and was therefore excluded from the coding.

The unit of analysis is each integrity measure, as listed in the "measures" column of each plan. Together, the five plans contain 121 measures: 41 in the plan of the General Secretariat of the Government, 14 in the plan of the Ministry of Investments and European Projects, 17 in the plan of the National Energy Regulatory Authority, 40 in the plan of Bucharest City Hall and 9 in the plan of Hidroelectrica S.A.

The coding procedure was applied to each of these measures along two dimensions. The first dimension concerns the orientation of the measure, classified as either compliance-based or values-based. The criteria adopted for each orientation follow the characterisation set out by the OECD (2020), which describes rule-based measures in terms of conformity with externally imposed standards, audits and controls, and reduced discretion, and values-based measures in terms of the development of organisational values, education on values and standards of conduct, and the cultivation of ethical competence. A measure was coded as compliance-based when its source of verification consisted of formal documentation, such as an administrative order, a register, a report, a declaration or a checklist, or when its performance indicator was binary or formally quantitative, or when its content concerned the adoption, completion or transmission of a formal instrument. By contrast, a measure was coded as values-based when its source of verification went beyond formal documentation, such as the assessment of training outcomes beyond participation or evidence of change in knowledge or attitudes, or when its content concerned ethics training, ethical leadership or the development of staff understanding of integrity norms in terms that went beyond procedural compliance.

The criteria were applied in a defined order, since the study examines how integrity is operationalised within the plans. The source of verification was used as the primary criterion because it indicates what is to count as evidence that a measure has been implemented. It shows whether implementation is to be demonstrated through formal administrative evidence or through evidence capable of capturing changes in knowledge, attitudes, conduct or organisational practice. Within this focus, a measure may be framed in values-oriented terms, but if its implementation is verified exclusively through formal documentation, then, at the level of the plan, it is operationalised through compliance-based mechanisms. Where the source of verification was ambiguous or absent, as in the plan of Hidroelectrica S.A., which does not include a column for sources of verification, the performance indicator was used. Where the indicator did not yield a clear classification, the wording of the measure itself was examined.

The substantive content of a measure nevertheless remains relevant. The coding framework therefore includes a second dimension, which records aspirational values content when the wording or indicators of a measure refer to ethics training or to staff knowledge of integrity norms, while the source of verification remained formal. This dimension addresses the relationship between the values-related content of a measure and the way it is made verifiable within the plan. Ethics training, for example, may be formulated in values-oriented terms. Whether its formal operationalisation matches this formulation depends on whether the verification mechanism captures something beyond participation, attendance or the existence of a report.

The framework was first tested on a subset of measures from each plan, then applied across all 121 measures.

4. Findings and Discussion

The analysis of the 121 measures leads to a first finding. All measures were coded as compliance-based under the primary criterion. Table 2 presents the distribution by entity. No measure in the sample met the criteria for being coded as values-based.

Table 2: Distribution of integrity measures by orientation

Entity	Total measures	Compliance-based	Values-based
General Secretariat of the Government	41	41 (100%)	0
Ministry of Investments and European Projects	14	14 (100%)	0
Bucharest City Hall	40	40 (100%)	0
National Energy Regulatory Authority	17	17 (100%)	0
Hidroelectrica S.A.	9	9 (100%)	0
Total	121	121 (100%)	0

This result should not be interpreted as an invalidation of compliance-based measures. Within an integrity system, certain interventions necessarily require rules, procedures and formal control mechanisms. The transposition of the EU whistleblower protection directive or the periodic internal audit of corruption prevention, for example, cannot function without legal and procedural frameworks. The problem identified by the analysis emerges when this formal framework remains the only way in which integrity is operationalised, without being accompanied by interventions oriented towards conduct, organisational practices or the internalisation of public values.

In the plans examined, a measure is considered implemented when the institution can indicate formal evidence of its implementation. This evidence may consist of an administrative act, a register, a report or a numerical indicator. It confirms that the institution has carried out an activity included in the plan, but it does not show whether that activity produced effects on conduct, internal practices or corruption vulnerabilities. From this perspective, the plans monitor the achievement of outputs rather than outcomes.

This limitation can be observed in the case of measures that, at least in their formulation, open towards the values-based component of integrity. Training in corruption prevention, transparency, ethics and integrity is verified through reports and related documentation, while awareness campaigns on corruption are verified through reports, related documentation and materials published on the institution's website. These sources confirm that the activities took place. They do not show whether training reduced integrity incidents, changed the way staff manage conflicts of interest or increased willingness to report irregularities, nor whether awareness campaigns changed the behaviour of target groups or reduced corrupt practices in the interaction

between public officials and citizens. In both cases, the measure produces an administrative trace of the activity, but no mechanism through which its effect on conduct can be verified.

The finding that all measures are compliance-based should therefore be understood as a diagnosis of the imbalance within the formal design of the analysed plans. The plans go beyond including formal-administrative measures where such measures are necessary. In the analysed documents, integrity is formally operationalised almost entirely through such instruments. Compliance is present in every measure, while the values-based component does not become observable through the sources of verification. This configuration moves away from the balance that the OECD (2020) places at the centre of integrity management. Compliance-based and values-based approaches are not alternatives, but components that should support one another. In the five plans analysed, the first component is fully present, while the second remains without its own mechanisms of verification.

The second coding dimension brings further detail to this picture. Table 3 presents the results.

Table 3: Measures containing aspirational values content

Entity	Total measures	Measures with aspirational values content	%
Bucharest City Hall	40	19	48%
General Secretariat of the Government	41	13	32%
Ministry of Investments and European Projects	14	4	29%
National Energy Regulatory Authority	17	0	0%
Hidroelectrica S.A.	9	0	0%
Total	121	36	30%

Of the 121 measures analysed, 36 contain aspirational values content. Close to one third of the measures included in the plans refer to ethics training or to the development of staff knowledge of integrity norms in their formulation or among their indicators, yet none is verified through mechanisms capable of capturing such elements. Values-related content is present at the level of formulation, but the source of verification only checks whether the action took place, not whether it produced the type of change that a values-based measure would be expected to pursue.

The distribution by entity also varies. Bucharest City Hall, the General Secretariat of the Government and the Ministry of Investments and European Projects include such measures in proportions ranging from 29% to 48%, while the National Energy Regulatory Authority and Hidroelectrica S.A. include no measures of this type. This variation indicates that integrity plans do not function as a uniform instrument across the entities analysed.

The variation can be illustrated through a measure that appears in similar wording in the plans of Bucharest City Hall and the National Energy Regulatory Authority. The measure concerns the consolidation of professionalism in the careers of public sector staff. In the plan of Bucharest City Hall, the performance indicators for this measure include the number of staff trained in the fields of ethics, integrity and anti-corruption. In the plan of the National Energy Regulatory Authority, the same measure is retained, but this indicator is omitted. Only quantitative indicators remain.

A further observation, which concerns not the orientation of the measures but their content, emerged during the coding. Some measures are not adapted to the institution that adopts them. They are taken over from the national strategy in identical or near-identical wording, without adjustment to the entity's specific activity or vulnerabilities. This suggests that the plans are not, in all cases, the result of an effort to translate integrity into the institution's own organisational context.

5. Conclusions and Limitations

This study examined how public integrity is articulated within the integrity plans adopted by Romanian public institutions. The analysis covered 121 measures from five integrity plans adopted within the 2021-2025 strategic cycle of the National Anti-Corruption Strategy. The reading was informed by the distinction drawn by the OECD between rule-based and values-based approaches.

The analysis showed that all 121 measures were coded as compliance-based, while 36 contain values-related aspirations in their formulation or among their indicators, operationalised through compliance-based mechanisms. The proportion of measures containing such aspirations varies across institutional types, from 48% at Bucharest City Hall to none at the National Energy Regulatory Authority and Hidroelectrica S.A. A closer reading also showed that a substantial part of the content of the plans does not address institution-specific corruption risks.

Read together, these results suggest that integrity plans in this strategic cycle operate less as instruments of organisational integrity management in the sense advanced by the OECD (2020), and more as documentary forms through which institutions discharge their obligations under the national strategy. If integrity plans are to function as instruments of organisational integrity management, institutions would need to formulate indicators capable of assessing effects on conduct and organisational practices, rather than only recording formal evidence that an activity has taken place.

The research has limitations that should be considered when interpreting the findings. The sample comprises five entities and was constructed to reflect institutional variation, not to support statistical generalisation. The patterns describe the five plans analysed and cannot be extended to all integrity plans across Romanian public administration without further empirical work. The selection of the five cases also carries limitations of its own. Each of the five entities represents a single instance of a broader institutional category. Bucharest City Hall is the capital city administration and may not reflect the design choices made by smaller local authorities. Hidroelectrica S.A. is a large state-owned enterprise listed on the stock exchange and may not reflect the practices of smaller state-owned enterprises operating under different governance arrangements. The National Energy Regulatory Authority operates in a specific sectoral context, and other independent regulatory authorities may approach integrity plans differently. The Ministry of Investments and European Projects manages European funds and may face integrity requirements specific to this activity that other line ministries do not face. The patterns identified in the analysis should therefore be read with these case-specific characteristics in mind.

Another limitation concerns the data analysed. The study relies exclusively on document analysis and examines the formal design of integrity measures as articulated in the integrity plans. It does not assess whether these measures reflect actual organisational practices or how integrity is interpreted and enacted within the entities that adopt the plans.

A separate limitation concerns the construct examined. As formal documents, integrity plans may reflect a range of obligations distinct from the integrity culture of the organisation that adopts them. The findings should therefore be read as evidence of how integrity is articulated within the formal design of these instruments, not as direct indicators of the integrity of the organisations themselves.

A further limitation concerns the coding hierarchy adopted in the analysis. Because the primary classification prioritises verification mechanisms, the analysis foregrounds the formal operationalisation of measures rather than their substantive content alone. An alternative coding framework, giving priority to the content or declared purpose of each measure, would produce a different reading of the same plans, particularly in the case of ethics training, awareness campaigns or measures aimed at increasing staff knowledge of integrity norms. Under such a framework, a measure addressing ethics training would be classified as values-based on the basis of its content, irrespective of whether its verification mechanism captures effects on conduct. The two readings are not incompatible. The second coding dimension introduced in this study was designed to capture precisely these cases, by recording aspirational values content where values-related aims are present but verification remains compliance-based.

The coding was carried out by the authors, with internal consistency checks during the process. External verification would strengthen any future extension of the analysis.

Future research could strengthen the findings through triangulation, combining the analysis of integrity plans with interviews with civil servants, contractual staff and persons in management positions within the adopting institutions, together with the examination of implementation reports or other evidence of organisational practice. Such an approach would help to capture how integrity is interpreted and enacted within Romanian public institutions, beyond the level of formal documentary design, and would clarify why the design of measures tends towards compliance and what considerations shape the choice of indicators and sources of verification.

Ethics Declaration: Ethical clearance was not required for this study.

Declaration of generative AI: Generative AI tools were used only for translation support and typo correction. The authors reviewed the final text and take full responsibility for the content of the paper.

Acknowledgements

Funded by NUPSPA during the PhD programme.

References

Audi, R. and Murphy, P. E. (2006) "The Many Faces of Integrity", *Business Ethics Quarterly*, Vol. 16, No. 1, pp 3-21. https://doi.org/10.5840/beq20061615

Bajpai, R. and Myers, C. B. (2020) *Enhancing Government Effectiveness and Transparency: The Fight Against Corruption*, Vol. 1, [online], World Bank Group, Washington, DC, http://documents.worldbank.org/curated/en/235541600116631094

Calderón, R., Piñero, R. and Redín, D. M. (2018) "Can compliance restart integrity? Toward a harmonized approach. The example of the audit committee", *Business Ethics, the Environment & Responsibility*, Vol. 27, No. 2, April, pp 195-206. https://doi.org/10.1111/beer.12182

Cambridge Dictionary (n.d.) "Integrity", [online], Cambridge University Press & Assessment, https://dictionary.cambridge.org/dictionary/english/integrity

Commission of the European Communities (1997) "Commission Opinion on Romania's Application for Membership of the European Union", COM(97)2003, [online], Brussels, https://enlargement.ec.europa.eu/opinion-romanias-application-membership-european-union_en

Evans, M. (2012) "Beyond the integrity paradox - towards 'good enough' governance?", *Policy Studies*, Vol. 33, No. 1, pp 97-113. https://doi.org/10.1080/01442872.2011.637324

Government of Romania (2021) „Hotărârea Guvernului nr. 1269/2021 privind aprobarea Strategiei naționale anticorupție 2021 - 2025 și a documentelor aferente acesteia", Monitorul Oficial al României, Part I, No. 1218, 22 December, pp 3-110. https://legislatie.just.ro/Public/DetaliiDocument/249828

Huberts, L. W. J. C. (2018) "Integrity: What it is and Why it is Important", *Public Integrity*, Vol. 20, pp 18-32. https://doi.org/10.1080/10999922.2018.1477404

Kayes, D. C., Stirling, D. and Nielsen, T. M. (2007) "Building organizational integrity", *Business Horizons*, Vol. 50, No. 1, pp 61-70. https://doi.org/10.1016/j.bushor.2006.06.001

Kirby, N. (2021) "An 'Institution-First' Conception of Public Integrity", *British Journal of Political Science*, Vol. 51, pp 1620-1635. https://doi.org/10.1017/S000712342000006X

Kroeze, R., Vitória, A. and Geltner, G. (eds) (2017) *Anti-corruption in History: From Antiquity to the Modern Era*, Oxford University Press, Oxford. https://doi.org/10.1093/oso/9780198809975.001.0001

Miller, S. (2023) "Corruption", [online], Stanford University, https://plato.stanford.edu/entries/corruption/

OECD (2017) *Recommendation of the Council on Public Integrity*, OECD/LEGAL/0435, [online], https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0435

OECD (2020) *OECD Public Integrity Handbook*, OECD Publishing, Paris. https://doi.org/10.1787/ac8ed8e8-en

OECD (2026) *Anti-Corruption and Integrity Outlook 2026: Harnessing the Integrity Advantage*, OECD Publishing. https://doi.org/10.1787/16708b78-en

Paine, L. S. (1994) "Managing for Organizational Integrity", [online], Harvard Business Review. https://hbr.org/1994/03/managing-for-organizational-integrity

Transparency International (n.d.a) "What is corruption?", [online], Transparency International, https://www.transparency.org/en/what-is-corruption

Transparency International (n.d.b) "Integrity", [online], Transparency International, https://www.transparency.org/en/corruptionary/integrity

Transparency International Romania (2012) „Strategia Națională Anticorupție", [online], Transparency International Romania, https://www.transparency.org.ro/en/content/strategia-nationala-anticoruptie

Yin, R. K. (2013) "Validity and generalization in future case study evaluations", *Evaluation*, Vol. 19, No. 3, pp 321-332. https://doi.org/10.1177/1356389013497081

Family Offices as Relational Governance Mechanisms in Family Firms: A Systematic Literature Review

Ricardo V.B. Koch[1], Shital Jayantilal[1] and Sílvia F. Jorge[2]
[1]Research on Economics, Management and Information Technologies (REMIT), Portucalense, University, Porto, Portugal
[2]GOVCOPP, DEGEIT, Aveiro University, Portugal

ricardobrunokoch@gmail.com
shital@upt.pt
sjorge@ua.pt

Abstract: Family firms represent the most dominant form of business organisation in the global economy, playing a central role in economic growth, job creation, and long-term wealth creation. Their importance extends beyond economic performance, as they are characterised by intergenerational continuity, socioemotional goals, and a long-term strategic orientation. Nevertheless, because family and business systems coexist within the same organisational structure, family firms are exposed to complex governance dynamics arising from the overlap between family relationships and business objectives. This overlap often generates divergent interests, coordination challenges, and conflicts in strategic decision-making among family members. Consequently, understanding governance mechanisms capable of improving cooperation, reducing conflict, and preserving long-term alignment has received increasing attention in family business and governance research. Within this context, family offices have emerged in the scientific literature as potential relational governance mechanisms that support not only wealth preservation and corporate management, but also broader relational governance functions within family business systems. Despite their growing practical relevance, the relational governance role of family offices remains relatively underexplored, particularly in contexts involving conflict, ownership complexity, succession challenges, and complex strategic choices. To address this gap, this study develops a systematic literature review focused on family firms, conflict dynamics, governance mechanisms, and family-office governance functions, with the objective of identifying key themes, conceptual relationships, and recent developments. Database searches conducted in Scopus and Web of Science identified 313 records. Following duplicate removal, screening, and analytical refinement, 47 studies were selected for the final thematic synthesis. The findings are organised around five interrelated themes: governance mechanisms as relational coordination structures; conflict and decision-making dynamics; behavioural dimensions of relational governance; succession, professionalisation, and continuity; and the emerging role of family offices in relational governance. The review indicates that the scientific literature converges around core topics such as governance mechanisms, agency-related tensions, trust and cooperation dynamics, conflict management, succession governance, strategic alignment, and long-term continuity. It contributes to family business, governance, and family-office research by positioning family offices as potential integrative governance coordination structures and by outlining future research directions in this emerging field.

Keywords: Conflict, Decision-making, Family business, Family office, Governance mechanisms, Relational governance

1. Introduction

Family firms represent one of the most important organisational forms worldwide, contributing substantially to economic development, employment creation, innovation, and long-term wealth preservation. Beyond their economic contribution, they are characterised by distinctive governance conditions arising from the overlap between family, ownership, and business systems (Tagiuri and Davis, 1996; Gersick et al, 1997; Chua, Chrisman and Sharma, 1999). This overlap creates governance challenges that differ from those observed in non-family firms, particularly because strategic decision-making, ownership control, succession, and continuity are often shaped by both economic and socioemotional considerations (Gómez-Mejía et al, 2007; Berrone, Cruz and Gomez-Mejia, 2012).

Although family firms are frequently associated with resilience, long-term orientation, and commitment to continuity, they are also exposed to complex governance tensions. The coexistence of family relationships and business interests may generate divergent objectives, emotional frictions, intergenerational disagreements, ownership disputes, and conflicts over authority, control, and strategic direction (Schulze, Lubatkin and Dino, 2001; Lubatkin et al, 2005; Zellweger and Kammerlander, 2015). Conflict in family firms is not limited to classical owner-manager agency problems and may involve tensions among family shareholders, between active and passive owners, between family and non-family managers, and between family interests and business requirements (Villalonga and Amit, 2006; Villalonga et al, 2015).

In this context, governance cannot be understood solely as a formal monitoring or control mechanism. Governance in family firms also involves relational, behavioural, and interactional processes in which family

members, owners, managers, board members, successors, and external actors negotiate interests, manage tensions, coordinate decisions, and preserve alignment across generations. Prior research has shown that family firm governance may combine formal mechanisms, such as boards, ownership structures, family constitutions, and succession plans, with informal mechanisms, including trust, relational norms, psychological ownership, family identity, and interpersonal communication (Mustakallio, Autio and Zahra, 2002; Broekaert et al, 2018; Sievinen, Ikäheimonen and Pihkala, 2022).

Governance mechanisms are significant in family firms because they shape not only formal authority and control, but also the relational conditions that enable family and non-family actors to communicate, resolve disputes, participate in strategic decision-making, and sustain cooperation. The literature has examined multiple governance structures and mechanisms, including boards of directors, ownership arrangements, succession planning, family councils, family constitutions, external managers, professional advisory structures, and informal relational governance practices (Rodriguez-Garcia and Menéndez-Requejo, 2023; Jayantilal, Jorge and Alcarva, 2024). Accordingly, this study adopts a relational governance perspective, approaching governance not only as a formal structure of control and monitoring, but also as a coordination mechanism that enables family and non-family participants to negotiate authority, manage conflict, align strategic priorities, and preserve long-term continuity within family business systems. This perspective provides the basis for examining family offices as potential relational governance mechanisms rather than solely as wealth-management or administrative entities.

Such an approach is valuable in multi-generational and complex family firms, where ownership dispersion, succession processes, and multiple family branches may intensify governance challenges. In these contexts, governance systems become important for reducing inter-family tensions, defining decision rights, and supporting coordination between family and business stakeholders. Prior research also suggests that multifamily firms may experience higher agency costs derived from inter-family conflict (Mukherjee, Swami and Wang, 2019). In this sense, governance mechanisms may function not only as control devices, but also as relational coordination structures that help mitigate conflict and preserve collective commitment to the firm.

Despite their practical importance, recent reviews indicate that family-office research remains fragmented, while their relational governance role is still insufficiently connected to conflict dynamics, strategic decision-making, and behavioural governance processes (Hayoz, Ge and De Massis, 2025; Siaba, Rivera and Currais, 2026). Studies on family constitutions, family protocols, agency conflicts, and intermediary structures suggest that governance requires mechanisms capable of delineating responsibilities, managing disagreement, supporting succession, and coordinating continuity (Zellweger and Kammerlander, 2015; Rodriguez-Garcia and Menéndez-Requejo, 2023; Jayantilal, Jorge and Alcarva, 2024). This creates an opportunity to consolidate current knowledge on governance dynamics in family firms while examining the potential role of family offices as relational governance mechanisms in these processes.

In response to this gap, this study develops a systematic literature review focused on the intersection between family firms, governance mechanisms, conflict dynamics, strategic decision-making, and family offices. Specifically, it examines the conceptualisation of governance mechanisms, the treatment of relational governance and conflict processes, and the implications of these insights for understanding family offices as possible governance intermediaries.

This study contributes to family business, governance, and family-office research in three ways. First, it advances a relational and interactional understanding of governance in family firms, moving beyond structural or monitoring-based approaches by showing how governance supports conflict mitigation, coordination, and strategic alignment among family and non-family participants. Second, it systematises literature connecting governance mechanisms, conflict management, strategic decision-making, relational coordination, and long-term continuity. Third, it positions family offices as potential relational governance mechanisms capable of supporting coordination, conflict mitigation, strategic alignment, and continuity in complex family business systems.

2. Methodology

This study adopts a systematic literature review approach to examine how governance mechanisms are conceptualised in family firms under conditions of conflict, strategic interaction, and decision-making complexity, with particular attention to family offices within family business governance. The review was guided by established procedures for management research and combined structured searching, screening, analytical refinement, and thematic analysis (Tranfield, Denyer and Smart, 2003; Denyer and Tranfield, 2009;

Snyder, 2019). The review was designed to identify studies that examine governance not only as a formal control mechanism, but also as a relational process through which family, ownership, and business actors coordinate decisions, manage tensions, and sustain continuity.

The literature search was conducted on 28 March 2026 using Scopus and Web of Science, given their extensive coverage of business, management, economics, governance, finance, and family business research. The search strategy was structured around three fundamental dimensions: family firms, conflict dynamics, and governance mechanisms, with particular attention to studies that could inform the understanding of family offices as relational governance mechanisms. Related expressions were grouped within each dimension and then combined to identify studies located at their intersection. The resulting search strings incorporated family-business expressions, conflict-related keywords, and governance concepts, including family office, family governance, corporate governance, decision-making, ownership structure, family constitution, control mechanisms, and wealth governance.

To ensure conceptual consistency and disciplinary relevance, database filters were applied. Only articles and review articles published in English were considered, and the search was restricted to subject areas associated with Business, Management, Accounting, Economics, Finance, Social Sciences, Decision Sciences, Business Finance, Family Studies, and related management fields. The initial searches produced 313 records, comprising 158 records from Scopus and 155 records from Web of Science. After removing 70 duplicate records, 243 records were retained for review. The search and screening process was therefore not limited to studies explicitly using the term “family office”, but also included studies addressing governance mechanisms, conflict management, ownership coordination, succession, and relational decision-making in family firms, as these concepts are central to positioning family offices within a broader relational governance framework.

The screening and classification were guided by a relational governance perspective. Priority was given to studies examining governance mechanisms as active relational processes involving interaction, strategic alignment, conflict management, negotiation, decision-making, coordination, or relational tensions among actors within family firms. Studies focused mainly on financial performance, governance-performance relationships, ownership concentration, dividend policy, debt structure, executive compensation, CSR, audit risk, compliance, internationalisation, or other outcome-oriented analyses were classified as peripheral to the relational governance synthesis.

The initial screening resulted in 156 studies selected for the initial review sample. A subsequent refinement identified 47 studies whose primary contribution addressed governance interaction processes, conflict management, succession negotiation, governance participation, informal governance, institutional logics, multi-actor tensions, or behavioural governance dynamics. These 47 studies formed the basis for the thematic analysis developed in Sections 3 and 4. This analytical refinement was consistent with the objective of the review, which was to synthesise literature capable of explaining how governance mechanisms operate relationally and how family offices may be conceptualised within this governance space.

To provide transparency, Figure 1 reports the selection and analytical refinement sequence according to the PRISMA 2020 reporting framework (Page et al, 2021).

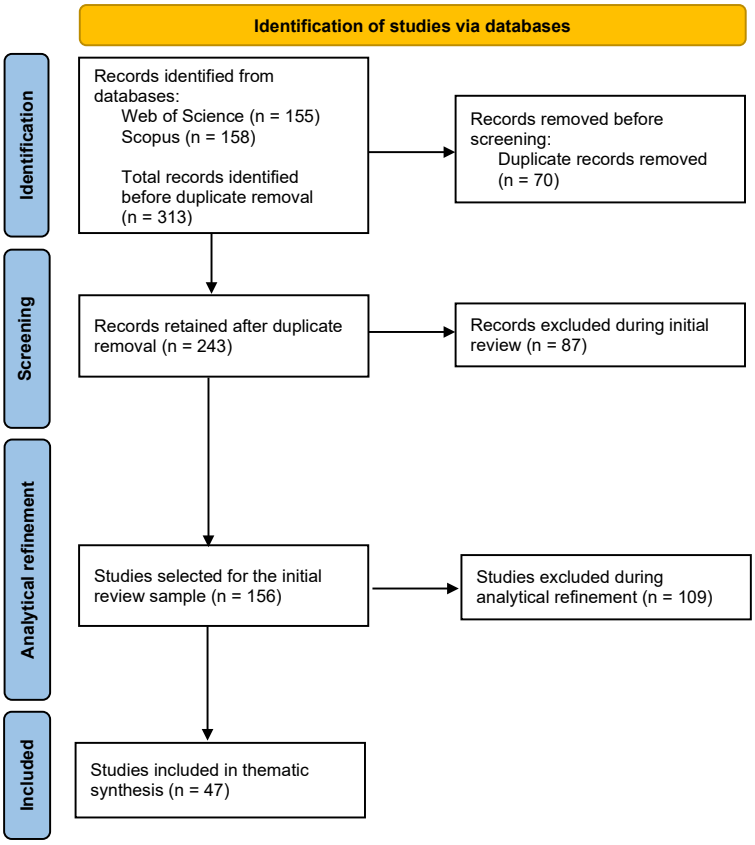


Figure 1: Adapted PRISMA 2020 flow diagram for the selection and analytical refinement process

As shown in Figure 1, database searches produced 313 records; after 70 duplicates were removed, 243 were retained, 156 formed the initial review sample, and 47 were included in the thematic synthesis.

The final set of studies was examined to identify recurrent patterns, conceptual relationships, and interpretive themes (Braun and Clarke, 2006; Thomas and Harden, 2008). The review then considered the selected studies in relation to governance structures, conflict and decision processes, behavioural foundations, and family-office involvement in family firm governance.

3. Review Findings

Given the objectives of the study, the final sample was analysed to identify the principal lines of research addressing relational governance in family firms and their relevance for understanding family offices as relational governance mechanisms. The selected studies show that relational governance is discussed through interconnected themes, including formal and informal governance mechanisms, conflict management, board and ownership interactions, succession governance, decision-making dynamics, professionalisation tensions, family identity, and behavioural governance processes. The family-office literature remains relatively fragmented; the review also draws on broader family governance studies that clarify the relational functions family offices may perform in complex family business systems.

Table 1 summarises the 47 studies included by organising representative contributions according to the main themes used in the review.

Table 1: Overview of key relational governance themes

Theme	Analytical focus	Representative Studies
Governance mechanisms in family firms	Formal and informal mechanisms structuring authority, coordination, role definition, conflict prevention, and continuity.	Zellweger and Kammerlander (2015); Sacristán-Navarro and Cabeza-García (2020); Rodriguez-Garcia and Menéndez-Requejo (2023); Jayantilal, Jorge and Alcarva (2024); Alshiha and Hassan (2025)

Theme	Analytical focus	Representative Studies
Conflict and decision-making dynamics	Relational tensions, dispute resolution, board conflict, ownership conflict, negotiation, and strategic decision-making.	Alderson (2015); Karam et al (2019); Kanadlı et al (2020); Islas-Moreno et al (2022); Bürgel and Hiebl (2024); Thys et al (2025)
Behavioural dimensions of relational governance	Psychological, emotional, identity-based, institutional, and informal factors shaping governance interaction.	Lubatkin et al (2005); Morell (2007); Calabrò, Campopiano and Basco (2017); Broekaert et al (2018); Qureshi, Shaikh and Seaman (2021); Brunner-Kirchmair et al (2025)
Succession, professionalisation, and continuity	Succession governance, leadership transition, professionalisation tensions, role boundaries, family rivalries, and continuity.	Isaacs and Friedrich (2011); de Oliveira, Albuquerque and Pereira (2012); Seaman, Welsh and Bent (2013); Joshi et al (2018); Wang, Gao and Wu (2022); Apaydin et al (2023); Gera et al (2026)
Family offices as relational governance mechanisms	Family offices and intermediary structures as relational governance mechanisms for coordination, conflict mitigation, responsibility clarification, decision-right allocation, and long-term alignment.	Zellweger and Kammerlander (2015); Rodriguez-Garcia and Menéndez-Requejo (2023); Jayantilal, Jorge and Alcarva (2024); Alshiha and Hassan (2025)

The final sample indicates that governance in family firms is not limited to formal monitoring or ownership control. Instead, family firm governance is best understood as a relational coordination process centred on authority negotiation, tension management, succession planning, professionalisation support, and long-term continuity. This interpretation provides the basis for positioning family offices as potential relational governance mechanisms that connect family, ownership, and business domains.

4. Thematic Analysis and Discussion: Family Offices as Relational Governance Mechanisms

This section integrates the review findings with the discussion and examines their implications for family offices. Together, these themes provide the analytical basis for conceptualising family offices as relational governance mechanisms that may coordinate family, ownership, and business interests in contexts marked by conflict, succession, and ownership complexity. The reviewed literature presents governance in family firms beyond ownership control, monitoring, or board oversight, emphasising a relational process involving authority coordination, tension management, participation negotiation, and continuity preservation.

The discussion follows the five themes introduced in Table 1 and examines their implications for family offices.

4.1 Governance Mechanisms as Relational Coordination Structures

The first theme addresses formal and informal mechanisms as foundations of relational coordination within family firms. In the reviewed literature, family constitutions, family protocols, boards, succession plans, family councils, ownership arrangements, and intermediary structures do not merely allocate authority or control rights. They also create procedures and arenas for family and non-family actors to clarify expectations, negotiate participation, coordinate strategic priorities, and reduce relational ambiguity.

Family constitutions and family protocols illustrate this relational function. Rodriguez-Garcia and Menéndez-Requejo (2023) argue that family constitutions may mitigate agency conflicts among family owners, shareholders, managers, and the wider family, whereas Jayantilal, Jorge and Alcarva (2024) frame the family protocol as a mechanism for conflict management, succession, and continuity. Conversely, weak or unclear governance arrangements, such as those examined by Sacristán-Navarro and Cabeza-García (2020) and Joshi et al (2018), may generate shareholder conflict, power struggles, communication breakdown, and trust deterioration.

As ownership and family complexity increase, this relational function gains significance. Zellweger and Kammerlander (2015) suggest that intermediary structures such as embedded family offices, single family offices, and family trusts may help separate family members from assets, reduce family blockholder conflicts, and coordinate decision-making across ownership groups. Formal structures, however, remain connected to informal governance. Trust, shared norms, communication patterns, family identity, and dyadic interaction can influence decision-making before, after, and between formal governance meetings (Sievinen, Ikäheimonen and Pihkala, 2022). Accordingly, governance mechanisms appear more effective when formal authority is

combined with relational coordination, reducing ambiguity and supporting constructive conflict management. This supports interpreting family offices as possible relational governance mechanisms in family businesses, particularly where formal structures need to be complemented by coordination, communication, and conflict-management functions.

4.2 Conflict and Decision-making Dynamics

The second theme examines conflict as a determinant of decision-making processes within family firm governance. Conflict is not treated in the reviewed literature merely as a dysfunctional outcome, but as a governance condition influencing authority, participation, ownership rights, succession choices, and strategic priorities. Because family, ownership, and business responsibilities frequently overlap, decision-making often involves competing preferences and relational tensions that cannot be addressed only through formal control mechanisms.

Several studies indicate that conflict may become destructive or productive depending on the quality of governance arrangements. Bürgel and Hiebl (2024) associate conflict-resolution strategies with organisational ambidexterity, while Islas-Moreno et al (2022) suggest that prior conflicts may influence the adoption of governance practices. At board level, Karam et al (2019) link board conflict to strategic decision-making, Kanadlı et al (2020) connect task conflict and board performance to openness, and Thys et al (2025) examine the board and top management team as a strategic leadership system.

These findings indicate that conflict does not automatically weaken governance. Its effects depend on whether governance mechanisms transform disagreement into deliberation, learning, and strategic clarification, or whether weak processes allow conflict to escalate into mistrust, fragmentation, and strategic paralysis. Within this logic, governance tools may function as conflict-management devices by clarifying expectations, institutionalising procedures for disagreement, and limiting the escalation of relational tensions (Alderson, 2015; Rodriguez-Garcia and Menéndez-Requejo, 2023). Family offices, therefore, may operate as relational governance mechanisms for decision coordination, tension mediation, and strategic disagreement across family, ownership, and business domains.

4.3 Behavioural Dimensions of Relational Governance

The third theme concerns the behavioural foundations of relational governance. Governance effectiveness in family firms depends not only on formal structures, rules, or ownership arrangements, but also on behavioural conditions influencing actors' interpretation of authority, acceptance of participation, management of disagreement, and coordination of decisions. Trust, psychological ownership, altruism, identity, stewardship, institutional logics, emotional attachment, and informal norms affect whether governance mechanisms are perceived as legitimate coordination devices or as instruments of control.

Broekaert et al (2018) indicate that psychological ownership can support commitment, but may also generate conflict when non-family managers expect participation in strategic decision-making while family owners resist delegating control. Calabrò, Campopiano and Basco (2017) identify business family identity as a moderator of conflicts among family owners, while Lubatkin et al (2005) argue that altruism may simultaneously support continuity and create agency risks such as moral hazard or adverse selection. Brunner-Kirchmair et al (2025) further demonstrate that religious, family, and business logics influence ethical decision-making, suggesting that governance is also shaped by competing value systems.

Informal and relational dynamics are particularly visible where governance occurs outside formal bodies. Morell (2007) relates decision-making in family enterprises to intra-family negotiation, power relations, solidarity, voice, and household responsibilities. Qureshi, Shaikh and Seaman (2021), in turn, associate governance failure with leadership mindset, internal conflict, organisational culture, and political behaviour. These contributions reinforce the view that relational governance cannot be reduced to formal mechanisms alone. For family offices, effectiveness depends not only on technical expertise or organisational design, but also on legitimacy, trust, credibility, and perceived fairness.

This reinforces the need to understand family offices beyond administrative or financial entities, as relational governance mechanisms whose authority depends on acceptance by family and non-family actors.

4.4 Succession, Professionalisation, and Continuity

The fourth theme frames succession and professionalisation as governance transition processes rather than merely as ownership or leadership transfers. Succession reconfigures authority, competence, legitimacy,

emotional attachment, and intergenerational expectations. Transitions characterised by limited governance clarity may intensify tensions between family, ownership, and business systems, especially when responsibility boundaries remain ambiguous. Isaacs and Friedrich (2011) highlight the risks associated with weak succession planning, destructive conflict, and family rivalries, while Joshi et al (2018) show how unclear ownership and governance structures can produce communication breakdown, trust deterioration, and conflict during generational transition.

Professionalisation further increases governance complexity because it often requires families to formalise decision rights, accept external participation, and renegotiate the boundaries between family authority and managerial competence. Apaydin et al (2023) illustrate how growth may require a transition from family governance toward corporate governance. Complementing this perspective, de Oliveira, Albuquerque and Pereira (2012) indicate that governance restructuring and formalised succession rules may reduce conflicts of interest in multigenerational family firms. Evidence from Seaman, Welsh and Bent (2013) and Gera et al (2026) further suggests that continuity depends on ownership transfer, mentoring, kinship relations, clarity of responsibilities, and conflict reduction.

This theme demonstrates that continuity is not secured by succession plans alone. It depends on arrangements capable of coordinating authority, legitimacy, competence, and emotional commitment across generations. Although professionalisation can reduce ambiguity, it can also create new agency and relational tensions when family members share authority with non-family managers, advisers, or formal governance bodies. Family offices can therefore support continuity as relational governance mechanisms by coordinating succession expectations, delineating responsibilities, mediating intergenerational tensions, and sustaining long-term alignment across family, ownership, and business domains.

4.5 Family Offices as Relational Governance Mechanisms

The fifth theme concerns the positioning of family offices as relational governance mechanisms within family firm governance. Although family offices are traditionally associated with wealth management, investment coordination, tax planning, and asset preservation, the reviewed literature suggests that their relevance to family firms is not confined to financial administration. In complex family business systems, family offices can be understood as intermediary governance structures that support coordination between family, ownership, and business domains.

Zellweger and Kammerlander (2015) provide an important foundation for this argument by positioning family offices, family trusts, and related intermediary structures as governance constellations for managing family blockholder conflicts and ownership complexity. As family ownership becomes more dispersed across branches and generations, such structures can help separate family members from assets, coordinate decision rights, and reduce conflict among family owners. This frames family offices not simply as service providers, but as structures influencing the relationship between family wealth, ownership, and strategic control.

The broader family governance literature supports this interpretation. Studies on family constitutions, family protocols, dispute-resolution mechanisms, and succession governance indicate that family firms often require structures capable of aligning expectations, defining responsibilities, supporting communication, and reducing conflict escalation. Rodriguez-Garcia and Menéndez-Requejo (2023) argue that family constitutions may reduce agency conflicts among family owners, shareholders, managers, and the wider family, while Jayantilal, Jorge and Alcarva (2024) examine the family protocol as a mechanism for managing conflict, supporting succession, and promoting continuity. Although these studies do not focus exclusively on family offices, they identify governance tasks increasingly associated with family offices.

Recent family-office research indicates that the field remains fragmented in relation to family business governance. Hayoz, Ge and De Massis (2025) call for family-office research to move beyond descriptions of services and structures, while Siaba, Rivera and Currais (2026) emphasise continuity, intergenerational transfer, and long-term wealth preservation. Taken together, this literature provides valuable descriptions of family-office functions but offers limited explanation of how formal arrangements, relational dynamics, and conflict processes interact within family business governance.

The analysis positions family offices as potential integrative relational governance mechanisms. Their contribution connects the themes identified in the review: responsibility clarification and decision-right allocation; communication and mediation; trust and legitimacy; succession, professionalisation, and continuity. Rather than viewing family offices primarily as providers of wealth-management and administrative services, this perspective advances prior reviews by conceptualising their potential coordination role within the

governance architecture of family firms. However, this governance contribution should not be presumed inherently beneficial: its effectiveness is likely to depend on a clear mandate, recognised legitimacy among relevant family and business actors, and sufficient autonomy from dominant family interests; without these conditions, family offices may duplicate existing arrangements or reinforce agency tensions, reduce transparency, and reproduce power asymmetries (Lubatkin et al, 2005; Zellweger and Kammerlander, 2015; Rodriguez-Garcia and Menéndez-Requejo, 2023; Jayantilal, Jorge and Alcarva, 2024). These boundary conditions clarify the circumstances under which family offices may contribute to relational governance.

5. Conclusion

This review examined literature on family firms, conflict dynamics, governance mechanisms, and family offices to analyse how governance is conceptualised as a relational and behavioural process. The review identified five principal themes: governance mechanisms as relational coordination structures; conflict and decision-making dynamics; behavioural dimensions of relational governance; succession, professionalisation, and continuity; and family offices as relational governance mechanisms.

The findings show that governance in family firms extends beyond formal monitoring, ownership control, and board structures. Governance mechanisms also support coordination among family and non-family actors by enabling them to negotiate authority, manage tensions, structure participation, and preserve long-term continuity. This relational interpretation is especially important in family firms facing conflict, ownership complexity, succession challenges, and strategic decision-making dilemmas.

The principal contribution of this review lies in positioning family offices as potential relational governance mechanisms within family firm governance. In addition to wealth management and asset preservation, family offices may support communication, mediation, succession coordination, strategic alignment, and continuity across family, ownership, and business spheres, particularly in contexts marked by ownership complexity, succession challenges, and intra-family conflict. Nonetheless, their governance contribution requires further theoretical development and empirical validation.

The investigation is limited by its reliance on Scopus and Web of Science and by its emphasis on studies most closely aligned with relational governance dynamics. Because family-office research remains an emerging and fragmented field, the review also drew on broader family governance studies to clarify the relational governance functions through which family offices may be conceptualised. Further empirical research should assess how family offices interact with boards, family councils, family constitutions, advisers, and business leadership, and contribute to conflict management, intergenerational coordination, and long-term continuity in complex family business systems without reproducing power asymmetries or becoming instruments of control.

Acknowledgements

This work is funded by national funds through FCT – Fundação para a Ciência e a Tecnologia, I.P., under the Programme Contract UID/05105/2025. https://doi.org/10.54499/UID/05105/2025

Ethics Declaration: This study is based exclusively on secondary literature and did not involve human participants, personal data, or primary empirical data collection; therefore, ethical approval was not required.

AI Declaration: The authors used ChatGPT as an AI-assisted support tool for language editing, structural review, and academic refinement. All outputs were reviewed, revised, and validated by the authors, who retain full responsibility for the manuscript.

References

Alderson, K. (2015) “Conflict management and resolution in family-owned businesses: A practitioner focused review”, Journal of Family Business Management, Vol 5, No. 2, pp 140–156.

Alshiha, O.A. and Hassan, S. (2025) “From Informal Trust to Binding Legal Charter: Family Business Governance in Saudi Arabia and the United States”, Manchester Journal of Transnational Islamic Law and Practice, Vol 21, No. 4, pp 326–349.

Apaydin, M. et al (2023) “Amr Allam: outgrowing a family business”, Emerald Emerging Markets Case Studies, pp 1–23.

Berrone, P., Cruz, C. and Gomez-Mejia, L.R. (2012) “Socioemotional wealth in family firms: Theoretical dimensions, assessment approaches, and agenda for future research”, Family Business Review, Vol 25, No. 3, pp 258–279.

Braun, V. and Clarke, V. (2006) “Using thematic analysis in psychology”, Qualitative Research in Psychology, Vol 3, No. 2, pp 77–101.

Broekaert, W. et al (2018) “Limits to psychological ownership in the family business”, Journal of Family Business Management, Vol 8, No. 2, pp 196–216.
Brunner-Kirchmair, T.M. et al (2025) “Religion logic and family firms’ ethical behavior towards employees”, Review of Managerial Science, Vol 19, No. 6, pp 1819–1857.
Bürgel, T.R. and Hiebl, M.R.W. (2024) “Family ownership, conflict resolution strategies and organisational ambidexterity”, International Journal of Entrepreneurial Venturing, Vol 16, No. 4, pp 463–499.
Calabrò, A., Campopiano, G. and Basco, R. (2017) “Principal-principal conflicts and family firm growth: The moderating role of business family identity”, Journal of Family Business Management, Vol 7, No. 3, pp 291–308.
Chua, J.H., Chrisman, J.J. and Sharma, P. (1999) “Defining the family business by behavior”, Entrepreneurship Theory and Practice, Vol 23, No. 4, pp 19–39.
de Oliveira, J.L., Albuquerque, A.L. and Pereira, R.D. (2012) “Governance, succession, and formalization of management in family businesses: (re)organizing the role played by multi-generation families”, Revista Brasileira de Gestão de Negócios, Vol 14, No. 43, pp 176–192.
Denyer, D. and Tranfield, D. (2009) “Producing a systematic review”, in Buchanan, D.A. and Bryman, A. (eds.) The SAGE Handbook of Organizational Research Methods, SAGE, London, pp 671–689.
Gera, S. et al (2026) “Family business succession in Indian micro and small technology business”, International Journal of Organizational Analysis, Vol 34, No. 2, pp 529–558.
Gersick, K.E. et al (1997) Generation to Generation: Life Cycles of the Family Business, Harvard Business School Press, Boston.
Gómez-Mejía, L.R. et al (2007) “Socioemotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills”, Administrative Science Quarterly, Vol 52, No. 1, pp 106–137.
Hayoz, P., Ge, B. and De Massis, A. (2025) “Research on family offices: What is the way forward? A systematic literature review”, Journal of Family Business Strategy, Vol 16, 100670.
Isaacs, E.B.H. and Friedrich, C. (2011) “Family Business Succession: Founders from Disadvantaged Communities in South Africa: An Exploratory Study”, Industry and Higher Education, Vol 25, No. 4, pp 277–287.
Islas-Moreno, A. et al (2022) “The role of conflict in the adoption of governance practices in family businesses”, Journal of Family Business Management, Vol 12, No. 4, pp 959–980.
Jayantilal, S., Jorge, S.F. and Alcarva, P. (2024) “Unravelling the determinants of family firms’ governance: the family protocol”, Journal of Family Business Management, Vol 14, No. 4, pp 829–847.
Joshi, M. et al (2018) “Transition dilemma in a closely held family business: A case of Excel Transporters”, European Journal of Family Business, Vol 8, No. 1, pp 17–32.
Kanadlı, S.B. et al (2020) “Effects of task conflict on board task performance in family firms: The importance of board openness”, Journal of Family Business Strategy, Vol 11, No. 2, 100350.
Karam, P.B.S., Machado Filho, C.A.P. and Abib, G. (2019) “Conflicts in boards of family firms: A theoretical framework for strategic decision-making”, Revista de Administração Contemporânea, Vol 23, No. 6, pp 703–720.
Lubatkin, M.H. et al (2005) “The effects of parental altruism on the governance of family-managed firms”, Journal of Organizational Behavior, Vol 26, No. 3, pp 313–330.
Morell, I.A. (2007) “Between harmony and conflicting interests: Gendered marital negotiations in Hungarian post-socialist farm family enterprises”, Journal of Comparative Family Studies, Vol 38, No. 3, pp 435–458.
Mukherjee, T., Swami, V. and Wang, W. (2019) “Governance structure and performance of private family firms”, Journal of Economics and Finance, Vol 43, No. 4, pp 713–734.
Mustakallio, M., Autio, E. and Zahra, S.A. (2002) “Relational and contractual governance in family firms: Effects on strategic decision making”, Family Business Review, Vol 15, No. 3, pp 205–222.
Page, M.J. et al (2021) “The PRISMA 2020 statement: An updated guideline for reporting systematic reviews”, BMJ, Vol 372, n71.
Qureshi, J.A., Shaikh, A.M. and Seaman, C. (2021) “Leadership mindset and the fall of once giant family-run textile exporting companies”, Global Business and Organizational Excellence, Vol 40, No. 6, pp 41–55.
Rodriguez-Garcia, P. and Menéndez-Requejo, S. (2023) “Family constitution to manage family firms’ agency conflicts”, BRQ Business Research Quarterly, Vol 26, No. 2, pp 150–166.
Sacristán-Navarro, M. and Cabeza-García, L. (2020) “When family firm corporate governance fails: The case of El Corte Inglés”, Journal of Family Business Management, Vol 10, No. 2, pp 97–115.
Schulze, W.S., Lubatkin, M.H. and Dino, R.N. (2001) “Agency relationships in family firms: Theory and evidence”, Organization Science, Vol 12, No. 2, pp 99–116.
Seaman, C., Welsh, R. and Bent, R. (2013) “Succession planning in minority ethnic family enterprises”, International Journal of Entrepreneurship and Small Business, Vol 20, No. 4, pp 402–419.
Siaba, S., Rivera, B. and Currais, L. (2026) “The contribution of family offices to family businesses: Conceptual analysis and future research agenda based on a systematic literature review”, European Research on Management and Business Economics, Vol 32, 100302.
Sievinen, H.M., Ikäheimonen, T. and Pihkala, T. (2022) “The role of dyadic interactions between CEOs, chairs and owners in family firm governance”, Journal of Management and Governance, Vol 26, No. 1, pp 223–253.
Snyder, H. (2019) “Literature review as a research methodology: An overview and guidelines”, Journal of Business Research, Vol 104, pp 333–339.
Tagiuri, R. and Davis, J.A. (1996) “Bivalent attributes of the family firm”, Family Business Review, Vol 9, No. 2, pp 199–208.

Thomas, J. and Harden, A. (2008) “Methods for the thematic synthesis of qualitative research in systematic reviews”, BMC Medical Research Methodology, Vol 8, 45.

Thys, E. et al (2025) “Board–TMT task conflict: The impact on shared strategic vision and moderating effect of shared leadership”, Journal of Small Business Management, Vol 63, No. 6, pp 2759–2798.

Tranfield, D., Denyer, D. and Smart, P. (2003) “Towards a methodology for developing evidence-informed management knowledge by means of systematic review”, British Journal of Management, Vol 14, No. 3, pp 207–222.

Villalonga, B. and Amit, R. (2006) “How do family ownership, control and management affect firm value?”, Journal of Financial Economics, Vol 80, No. 2, pp 385–417.

Villalonga, B. et al (2015) “Governance of family firms”, Annual Review of Financial Economics, Vol 7, pp 635–654.

Wang, L., Gao, Q. and Wu, C. (2022) “The effect of succession on corporate governance reform under the Chinese clan culture context”, Cross Cultural & Strategic Management, Vol 29, No. 4, pp 761–797.

Zellweger, T.M. and Kammerlander, N. (2015) “Family, wealth, and governance: An agency account”, Entrepreneurship Theory and Practice, Vol 39, No. 6, pp 1281–1303.

Development of Emotional Intelligence in the Czech Armed Forces

Eva Kozáková
Faculty of military leadership, Department of Applied Social and Human Sciences, University of defence, Brno, Czech Republic

eva.kozakova@unob.cz

Abstract: Emotional intelligence has become an increasingly important competency for effective leadership, particularly in military environments characterized by high levels of interpersonal interaction, operational pressure, and complex decision-making. Despite growing international recognition of its importance, emotional intelligence is not yet systematically incorporated into the professional development of commanders within the Czech Armed Forces. This paper aims to develop an evidence-based educational framework for emotional intelligence training tailored to direct-level military commanders. The proposed methodology builds on previous quantitative research conducted within the Czech Armed Forces, a review of international military practices, and established instructional design principles. The framework defines participant and graduate profiles, learning objectives, a five-module curriculum, implementation requirements, and a multi-level evaluation strategy based on Kirkpatrick's model. A SWOT analysis is employed to assess the feasibility of implementation within the Czech military education system. The proposed educational framework provides a structured approach to developing emotional competencies that support leadership effectiveness, interpersonal communication, decision-making, and unit cohesion. The paper contributes both to military leadership development and to the broader field of human resource development by presenting a transferable framework for emotional intelligence education in high-reliability organizations.

Keywords: Emotional intelligence, Emotions, Regulation of emotions, Leaders, Military leadership, Czech Armed Forces, Commander development

1. Introduction

A growing body of empirical evidence consistently demonstrates that leader emotional intelligence (EI) is a key determinant of a wide range of constructive organizational outcomes (Cabral et al., 2020; Dartey-Baah et al., 2020; Fianko et al., 2020). This trend is closely mirrored in the field of human resource development, where research on affectivity and emotional competencies has established itself as a progressive and dynamically evolving subdomain (Miao et al., 2020; Shirmohammadi et al., 2021).

Although the epistemological roots of emotional intelligence extend back to classical philosophical thought and early psychological discourse (Mayer et al., 2004), its formal conceptualization was crystallized by Salovey and Mayer (1990). They operationalized EI as the cognitive ability to monitor, differentiate, and utilize emotional information to direct thought and behaviour. While initially confined to academic psychology, the construct gained substantial traction among organizational practitioners through the seminal work of Goleman (1996; see also Weinberger, 2002). This popularization corresponded with a broader paradigm shift in organizational behaviour; until the late 20th century, affect was largely marginalized in corporate research (Fox & Spector, 2002). Over the past two decades, however, this initial scepticism has been replaced by a robust and continuously expanding body of literature dedicated to the systematic study of workplace affect and emotional dynamics (Ashkanasy & Humphrey, 2011), (Gerhardt, Bauwens and van Woerkom, 2025).

Based on current empirical evidence, the construct of emotional intelligence emerges as a viable pathway for developing the essential skills required by commanders to facilitate their interpersonal work with subordinates. Emotional intelligence encompasses the capacity to accurately identify emotions in oneself and others, comprehend emotions and their conceptual language, regulate affect within oneself and others, and harness emotions to facilitate cognitive activities and motivate adaptive behaviour, thereby offering diverse applications. Emotional intelligence helps prevent interpersonal problems and fosters positive relationships between soldiers and commanders, particularly within small military units. Both scholarly literature and military leadership doctrines feature insights into emotional intelligence and its significance in leading military personnel.

The Czech Armed Forces, as a full NATO member, operates across direct, operational, and strategic leadership levels. At the direct leadership level commanders maintain daily face-to-face contact with subordinates, making interpersonal and emotional competencies particularly critical. Current Czech military professional education does not yet systematically integrate EI development into its curriculum, representing a gap this paper seeks to address. Direct-level commanders develop their subordinates through direct interaction and exert an indirect influence on the organization through those they lead. In comparison with commanders at

higher command levels, they operate in environments characterized by certainty and lower complexity. Their span of command typically ranges from individual soldiers to several hundred personnel. In contrast to the longer planning horizons characteristic of higher command levels, direct-level commanders operate within a time horizon extending from immediate actions to approximately two years. Professional competence is demonstrated through a leader's knowledge, skills, and behaviour. While the emphasis placed on individual competencies may differ across command levels, all of them remain fundamental to effective leadership.

The primary objective of this paper is to develop a comprehensive methodology for emotional intelligence training for direct-level commanders in the Czech Armed Forces. The proposed methodology builds upon previous empirical findings, a review of international military educational practices, and contemporary instructional design principles. The paper presents a structured framework for course design, implementation, and evaluation and discusses its potential contribution to military leadership development and professional education.

2. Emotional Intelligence in Military Leadership: Literature Review

The obligation to conduct professional educational activities constitutes an integral duty of every commander. It is essential for commanders to possess fundamental knowledge in this domain to effectively guide the educational process of their subordinates, thereby ensuring the overall performance and efficacy of the entire unit. Military leader development requires a combination of diverse approaches, activities, and learning opportunities, while concurrently integrating learning and development at the individual level with the learning of the organization (Mumford & Gold, 2004; Truneček, 2004).

A military unit operates as a complex organism wherein the commander plays a decisive role. For the unit to function effectively and achieve its objectives, the social climate also exerts a critical influence, shaping the overall dynamics of the relationship between the commander and their subordinates. Daily operational activities involve a bidirectional exchange of emotional information, specifically the ability to decode social cues in subordinates' behaviour on one hand, and to respond appropriately on the other. This interaction represents a convergence of all three examined domains: leadership, social climate, and emotional intelligence. Based on these insights, the pivotal question arises as to how emotional intelligence should be integrated into the training and development system for direct-line commanders in the Czech Republic to enhance and support the operational needs of their units.

Contemporary literature provides the professional community with empirical evidence demonstrating that a high level of emotional intelligence is positively correlated with effective decision-making, the establishment of positive relationships, and leadership. Training in emotional intelligence and developing its individual components (emotion perception, emotion facilitation, emotion understanding, and emotion management) would enhance the capacity to utilize emotions to facilitate thought, foster creativity, improve problem-solving efficiency, and manage emotions to promote personal growth (Hudson, 2016).

Learning effective strategies for emotional self-regulation and assisting others in managing their emotions is essential for laying a strong foundation for the development of positive interpersonal relationships and exerting a positive influence on the company's social climate. The ability to effectively build positive relationships across diverse environments represents a key attribute of cross-cultural competence, which can be enhanced through emotional intelligence training.

In 2015, experts from the Yale Center published a scholarly paper addressing the integration of emotional intelligence training into military preparation. The authors emphasize that numerous approaches and formats exist for incorporating emotional intelligence training into contemporary military training frameworks. The first variant is based on emotional intelligence training centred on simulation-based exercises that encompass realistic operational scenarios. Within this framework, teams learn how to resolve selected situations and make decisions under pressure using virtual reality technology. This approach provides military personnel with the opportunity to develop their skills through systematic practice and to receive feedback. These simulation-based scenarios should also encompass training in emotional identification and regulation, alongside cognitive and behavioral skills (Oden, Lohani, McCoy, Crutchfield, & Rivers, 2015).

Simulation-based exercises offer a suitable opportunity to evaluate training participants' performance. When applying this format, the instructor can adjust and adapt the timing in real time, allowing the commander to acquire a specific skill within a designated time spectrum, which facilitates performance evaluation throughout the entire simulation scenario.

These scenarios should feature a defined number of complexes, real-world events that demand rapid decision-making under emotionally charged circumstances. For training purposes, it is advantageous to utilize virtual technology, where emotions can be accurately mapped onto virtual characters to evoke emotional responses as appropriate. For instance, the United States Marine Corps developed a virtual program configured to immerse infantry units into highly realistic, complex simulated missions, known as the Infantry Immersion Trainer (Babb, 2019).

While the capabilities of modern technology provide military professionals with opportunities to acquire expert knowledge and skills within a simulated environment, consideration must be given to leveraging such technological advancements for emotional intelligence training. Through these means, social, emotional, and psychological aspects, alongside leadership training, could be explicitly addressed within a virtual environment. Such a program could incorporate emotionally expressive virtual characters, psychophysiological assessments, and instructional tools designed for skill-oriented feedback purposes (Oden, Lohani, McCoy, Crutchfield, & Rivers, 2015).

In the Australian Army, Major Moriarty (2018) examined the integration of emotional intelligence into the professional development of military personnel. The author emphasizes the necessity of incorporating an emotional intelligence model throughout the entire career span of an Australian soldier. It would be beneficial to build upon existing applied programs that cover stress and emotion management, where the focus on all components of emotional intelligence needs to be reinforced. Emotional intelligence is a potential key to true leadership success; however, much like cognitive intelligence, emotional intelligence is not a standalone solution. Authentic leadership requires both.

The modern soldier is professionally and emotionally exposed to immense pressure within today's complex environment. The preparation of commanders should encompass the development of self-awareness, awareness of others, emotional management strategies, and techniques for handling high-stress situations. Integrating emotional intelligence education is undoubtedly the path forward (Moriarty, 2018).

In doctoral dissertation, Hudson conducted research on emotional intelligence and leadership within a military educational setting in the United States. In the recommendations section, the author proposes that the training of military commanders should include an emotional intelligence development program. Emotional intelligence drives sound decision-making, while self-sufficiency provides the confidence necessary to execute these decisions. The military would benefit significantly from training its non-commissioned officers (NCOs) and commissioned officers in emotional intelligence to cultivate leaders capable of understanding both their own emotions and the emotional intelligence of others (Hudson, 2016). In civil environments, emotional intelligence is routinely integrated as a standard topic within leadership development courses.

A pilot quantitative study was conducted within the Czech Armed Forces to examine the level of emotional intelligence among direct-level commanders (Kozáková, 2021). The first stage of this empirical research focused on identifying the level of emotional intelligence (EI) among selected direct leadership commanders within the Armed Forces of the Czech Republic and subsequently comparing their scores with a standardized normative sample. The findings reveal that while sixteen respondents fell within the broad average range, thirteen scored in the below-average category, and only one respondent achieved an above-average classification relative to the reference population. These outcomes clearly indicate significant room for the enhancement of emotional intelligence within this cohort, highlighting a distinct opportunity to explore targeted developmental frameworks and propose a customized methodology tailored specifically for personnel of the Czech Armed Forces. Following the initial EI assessment, the research shifted focus to evaluating how subordinates perceive the social climate within individual military companies (Kozáková, 2021).

This second stage of the study rigorously tested six formulated hypotheses utilizing a comprehensive questionnaire designed to monitor organizational conditions within the work environment, workplace relationships and cooperation, commanders' professional behavior, and overall job satisfaction. The first four hypotheses examined the variances in mean values across these individual categories. At a significance level of $p = 0.05$, statistically significant differences were observed between the scores of individual companies, both within specific thematic blocks and in the overall evaluation. Conversely, regarding item forty-five, no statistically significant differences in response frequencies were detected among the individual companies at any significance level.

Furthermore, a demographic analysis was conducted to compare respondents across distinct age groups representing early adulthood (18–29 years) and middle adulthood (30 years and older). This analysis yielded

no statistically significant differences at the 0.05 level between the responses of these age cohorts, a consistency that held true both within specific companies and across individual question blocks. Ultimately, this project reflects the comprehensive findings of a quantitative study aimed at mapping the baseline emotional intelligence of commanders in a selected Czech military unit and systematically analysing its direct impact on the unit's internal social climate. In summary, this study serves as a critical foundational framework that objectively demonstrates a clear and open avenue for the strategic development of emotional intelligence among military commanders. By identifying specific gaps and linking EI directly to the workplace climate, these findings provide a rigorous justification for implementing targeted psychological and leadership training programs within the Czech Armed Forces (Kozáková, 2021). Although previous studies have demonstrated the importance of emotional intelligence for military leadership, no comprehensive educational framework has yet been proposed for the systematic development of emotional intelligence among direct-level commanders in the Czech Armed Forces. The proposed framework addresses this gap by integrating empirical evidence, international military practice, and instructional design principles.

2.1 Methodological Framework

2.2 Design of the Emotional Intelligence Development Program

The proposed educational framework aims to develop the core components of emotional intelligence among direct-level commanders serving within the Land Forces of the Czech Armed Forces, specifically company commanders, deputy company commanders, platoon leaders, and deputy platoon leaders. It is designed to strengthen the interpersonal competencies required for effective military leadership, including the ability to recognize, interpret, and appropriately respond to the emotional cues of subordinates. By enhancing these competencies, the framework seeks to improve leadership effectiveness, communication, subordinate management, and the development of a positive organizational climate within military units.

The proposed framework represents a structured professional development initiative based on educational needs identified through quantitative research conducted within the 7th Mechanized Brigade (Kozáková, 2021). It also draws on the four-branch model of EI, competency requirements defined in the Czech National Register of Qualifications, and leadership competency models adopted by selected NATO member states. A SWOT analysis was used to evaluate the internal and external factors affecting the successful implementation of the programme within the Czech military education system. Based on the training needs analysis, the following objectives for the educational event have been formulated.

Main objective is to enhance the individual levels of the emotional intelligence components (emotion perception, emotion facilitation, emotion understanding, and emotion management) among participants through the completion of the training course, and to develop their capacity to apply these components in practice within command positions of the Armed Forces of the Czech Republic. The training course is attended by individuals serving within the Land Forces Headquarters of the Mechanized Brigade of the Armed Forces of the Czech Republic.

Table 1: SWOT Analysis of the Methodology Implementation

	Strengths	**Weaknesses**
Internal factors	Interconnectedness of initial and continuing education High applicability of knowledge gained during educational activities in subordinate management Support for commander development Support for the fulfilment of commanders' duties as defined by the All-Arms Manual 1-1 Professional competency development for instructors and direct leadership commanders	Commanders' reluctance and lack of interest in self-education Insufficient instructor experience in developing emotional intelligence

	Opportunities	**Threats**
External factors	Expanding the educational offerings in alignment with the commanders' training system	Insufficient funding for the proposed project
	Supporting the educational policy for commanders as declared in the military leadership doctrines of NATO nations	Legislative changes impacting commanders' education
	Leveraging the potential of expert instructors and material resources to support the further development of commanders	Low awareness among the public regarding the benefits of emotional intelligence and a lack of knowledge concerning its development opportunities
	Drawing inspiration from international approaches to emotional intelligence development	

The SWOT analysis highlights that while the methodology strongly aligns with NATO leadership doctrines and enhances commander development, its internal success faces risks from commander reluctance and a lack of experienced instructors. Externally, the project can leverage international approaches and expanding training frameworks, though it remains vulnerable to funding constraints, legislative changes, and low public awareness of emotional intelligence benefits.

Table 2: Structural Framework of the Educational Program for Developing Military Commanders' Emotional Intelligence

Module and Core Objective	**Thematic Blocks**	**Key Subchapters and Covered Content**
MODULE 1: Introduction to Emotional Intelligence ***Objective: To introduce theoretical concepts of EI, its models, measurement methods, and the fundamentals of its application within military leadership.***	1. Introduction to EI 2. EI Models 3.EI Measurement 4. Application in Leadership	Cognitive abilities vs. emotional systems, theories of emotion, trait models of personality. Salovey & Mayer (original and revised models), Bar-On's mixed model, organizational approaches Diagnostic tools, validity of EI, and an in-depth structure of the MSCEIT method. Application of EI in the military, EI in the context of learning, success, and the commander's interpersonal skills.
MODULE 2: Perceiving Emotions ***Objective: To enable participants to recognize emotions as they arise, express feelings appropriately, distinguish manipulation from honest expression, and effectively apply empathy in practice.***	1.Emotional States and Perception 2.Expressing Emotions 3. Empathy	Characteristics of basic emotions, perception and decoding of emotional signals, self-awareness, Mindfulness. Verbal and non-verbal expression of emotions, social consequences of emotional expression. The concept of empathy and its utility in interpersonal relations, empathetic communication, and techniques for working with subordinates.
MODULE 3: Using Emotions ***Objective: To assess social context using verbal and cognitive skills, understand the impact of emotions on attitudes, and adapt flexibly to changing conditions.***	1.Cognitive Processes and Emotions 2.Positive Thinking and Emotions	Problem-solving, managerial decision-making, creative and innovative thinking. Building psychological resilience, managing emotional fluctuations under load and stress.
MODULE 4: Understanding Emotions ***Objective: To label specific emotions and understand their significance, comprehend the biological background of emotions, and manage negative states in subordinates.***	1. Context and Background of Emotions 2. Emotions and Leadership	The cognitive triangle (situation–emotion–thought), biological and neurobiological background of emotions. Managing and addressing anxiety, fear, and aggression in command practice.

Module and Core Objective	Thematic Blocks	Key Subchapters and Covered Content
MODULE 5: Managing Emotions ***Objective: To work with emotions in a social context, develop intrinsic motivation, and foster a positive social climate within the unit.***	1. Managing Emotions 2. Managing Emotions in Relationships	Social emotions, self-conscious emotions, group emotions, the phenomenon of emotional contagion, self-motivation, and the principles of emotions. Fostering a socio-psychological atmosphere (climate), the psychological nature and dynamics of interpersonal relationships within a group.

Assuming the primary objective is achieved, graduates will possess well-developed components of emotional intelligence and will be capable of applying this construct in practice within command positions of the Armed Forces of the Czech Republic. First and foremost, it is essential to establish the syllabus and the time schedule for the educational event. For this educational methodology, the author selected a modular syllabus design, which enables the fulfilment of the specific requirements of the course. The educational event will span five days. Table 2 outlines the individual modules, along with the corresponding number of days and instructional hours. Instruction will take place in a classroom equipped with the material and technical infrastructure necessary for interactive, project-based learning. At the beginning and at the conclusion of the educational event, diagnostics of emotional intelligence will be conducted using the MSCEIT test. Within the individual modules, comprehension of the lecture material will be verified through modified assessment methods. Upon completion of the educational event, participants who demonstrate the required knowledge and skills in fulfilling the assessment tasks will be awarded a certificate.

2.3 Implementation Requirements

To facilitate interactive teaching, the course enrolment must be limited to a maximum of 20 participants. To define the necessary didactic resources for the educational event, it is essential to divide them into two categories: tangible (material) and intangible (non-material). Within the first, tangible category, it is required that the training activity takes place indoors, in an irregularly shaped classroom with a capacity for 20 people and a minimum size of 55 m². This specific type of classroom has been selected because it allows for alternative seating arrangements for the participants. The overall equipment of the classroom should focus on supporting instruction characterized by mutual interaction and cooperation between the participants and instructors. The premises should accommodate the implementation of discussion-based, group, project-based, as well as traditional frontal instruction. The facilities should provide mobile furniture (chairs and desks fitted with casters for easy reconfiguration of the room layout according to the specific teaching methods and activities). The room should be equipped with 8 rectangular mobile desks with casters, 23 mobile chairs with casters, and one instructor's desk. The technical equipment of the classroom should consist of 12 laptops with internet connectivity, 4 LCD screens, 1 desktop computer (or alternatively a laptop with a monitor, keyboard, and mouse), a projector, a projection screen, audio-visual connectivity, a lapel microphone, a whiteboard, and a flipchart.

The software configuration for the 12 laptops should include Windows, MS Office-The single desktop computer (or laptop with an external monitor) should be equipped with the HTS program and MSCEIT test. Study materials will be prepared and uploaded by the instructors to the Moodle system, where they will be categorized into individual learning modules. Printed and paper-based materials will also be utilized during instruction. Course textbooks (study scripts) will be compiled for the program; however, due to cost considerations, they will be provided exclusively in electronic format.

The execution of the educational event will be supported by two instructors, a psychologist from the University of Defence, the academic registry, and a technician. The instructors will be responsible for delivering the educational modules, with one instructor being a civilian employee and the other a professional soldier. The academic registry will maintain the enrolment records of the course participants. The University of Defence psychologist will provide individual consultations upon request by the participants during or after the course implementation.

2.4 Evaluation Framework

The proposed educational programme will be evaluated using Kirkpatrick's training evaluation model. In this case, assessing the economic aspect would be of no significance. The evaluation process will take place at the beginning, at the conclusion, and following the completion of the training activity. The evaluation framework will be structured about Kirkpatrick's theoretical concept of training evaluation, incorporating three distinct

levels: reaction, learning, and behaviour. These three levels of evaluation aim to assess how well the participants received the educational program, what knowledge they acquired, and how they applied these new skills in practice (Dvořáková, 2020).

The initial evaluation at the beginning of the educational event will be conducted to establish the participants' baseline level of emotional intelligence. To determine this, participants will be administered the MSCEIT test on the opening day of the event during the introductory session inside the classroom. This baseline data will be utilized by the instructors throughout the execution of the training event and will serve as a foundation for assessing its overall success.

The evaluation at the conclusion of the educational event will serve two purposes. The first objective is to determine participant satisfaction with the individual modules and their content, the performance of the instructors, and the material and technical infrastructure of the classroom. The second objective is to obtain the post-training output emotional intelligence scores of individual participants. To achieve the first objective, the evaluation will be conducted via a questionnaire survey comprising both open-ended and closed-ended questions. This will be distributed to the participants during the final session on the last day of the course in the classroom. To fulfil the second objective, the MSCEIT test will be administered once again to allow for a comparison between the baseline and post-training emotional intelligence values. The MSCEIT test will be completed during the opening session of the final day of the course in the classroom.

The post-training evaluation, after the completion of the educational event, aims to ascertain whether the participants have applied the acquired skills to their professional lives, what impact this has had on their management of subordinates, and whether the training activity yields a long-term effect on the commanders' military practice. Subsequent cycles of the educational activity will be modified based on the findings of this evaluation. This evaluation will take place six months after the conclusion of the training program via an online questionnaire with open-ended and closed-ended questions, sent to the participants' personal email addresses. Upon successful completion of the training, the participant is entitled to receive a certificate of attendance in a continuing lifelong learning professional development program.

3. Conclusion

The project proposal for a methodology tailored for direct leadership commanders within the Armed Forces of the Czech Republic is presented, along with further recommendations. The primary objective of the methodology is to enhance the individual levels of the participants' emotional intelligence components (emotion perception, emotion facilitation, emotion understanding, and emotion management) and to develop their capacity to apply them in practice within command positions of the Armed Forces of the Czech Republic. The novelty of the proposed framework lies in integrating empirical evidence from the Czech Armed Forces with international military leadership practices and instructional design principles into a structured emotional intelligence development programme.

The presented methodology defines both the participant profile and the graduate profile of the educational event. Individuals serving within the Land Forces Headquarters of the Mechanized Brigade of the Armed Forces of the Czech Republic are eligible to participate. The prerequisite for participation is the completion of secondary education with a school-leaving examination. Graduates will possess well-developed components of emotional intelligence and will be capable of applying them to their command practice. The methodology comprises five learning modules, namely: Theoretical Foundations of Emotional Intelligence, Emotion Perception, Emotion Facilitation, Emotion Understanding, and Emotion Management. The developed syllabi define the module titles, structures, literature references, and methods of completion. Upon implementation of the educational activity, the course specification sheets (course annotations) would be updated to include the full names of the instructors.

To implement the methodology, it is necessary to secure material, technical, and financial resources. The staffing will be provided by two instructors, a University of Defence psychologist, the academic registry, and a technician. Furthermore, competency requirements are defined for each specific role. The evaluation process will take place at the beginning, at the conclusion, and following the completion of the educational event. The methodology is designed in full compliance with andragogical instructional requirements. Following the implementation of the educational methodology, a qualitative research study should be conducted using semi-structured interviews with commanders to evaluate the benefits and limitations of the methodology in command practice.

In the domain of pedagogical application, it is recommended to incorporate the topic of emotional intelligence into future degree program accreditations within the leadership course, as well as to design and implement an elective training course for students at the Faculty of Military Leadership of the University of Defence. Based on international leadership doctrines, it is further recommended that future Czech leadership doctrines explicitly include emotional intelligence as a specific individual characteristic of a commander and inherently link it to professional development within military command practice.

Acknowledgements

This research was benefited from a grant from university defence in Brno, (DZRO-FVL22-LANDOPS).

Ethics declaration: Ethical clearance was not required for the research. During the preparation of this work, the author used Google's Gemini tool for the purpose of language editing and proofreading.

Reference

Ashkanasy, N.M. and Humphrey, R.H. (2011) 'Current emotion research in organizational behavior', Emotion Review, 3(2), pp. 214–224. doi: 10.1177/1754073910391684.

Babb, C. (2007) Infantry Immersion Trainer Begins Training Marines in a Virtual Environment. Available at: https://www.onr.navy.mil/en/Media-Center/Press-Releases/2007/TrainingMarines-Virtual-Environment (Accessed: 11 June 2019).

Cabral, A.M.R., Carvalho, F.M.P. and Ferreira, J.A.V. (2020) Emotional intelligence and cultural intelligence in top management of international SMEs, Eurasian Journal of Business and Management, 8(3), pp. 240–265. doi: 10.15604/ejbm.2020.08.03.007.

Dartey-Baah, K., Annor, F. and Agbozo, R.K. (2020) 'Leading with emotions: An empirical study of a tertiary institution in Ghana', International Journal of Business, 25(3), pp. 250–265.

Dvořáková, Z. (2004) Slovník pojmů k řízení lidských zdrojů. Praha: C.H. Beck.

Fianko, S.K., Afrifa, S. Jr. and Dzogbewu, T.C. (2020) 'Does the interpersonal dimension of Goleman's emotional intelligence model predict effective leadership?', African Journal of Business and Economic Research, 15(4), pp. 221–245. doi: 10.31920/1750-4562/2020/v15n4a10.

Fox, S. and Spector, P.E. (2002) 'Emotions in the workplace: The neglected side of organizational life introduction', Human Resource Management Review, 12(2), pp. 167–171. doi: 10.1016/S1053-4822(02)00044-X.

Gerhardt, K., Bauwens, R. and van Woerkom, M. (2025) 'Emotional Intelligence and Leader Outcomes: A Comprehensive Review and Roadmap for Future Inquiry', Human Resource Development Review, 25(1). doi: 10.1177/15344843251342689.

Goleman D. (1996). *Emotional intelligence: Why it can matter more than IQ*. Bloomsbury Publishing.

Hudson, K. (2016) Emotional Intelligence and Self-Efficacy in Military Leaders. Ed.D. dissertation. Brandman University.Available at: https://digitalcommons.brandman.edu/cgi/viewcontent.cgi?article=1038&context=edd_dissertations (Accessed: 3 June 2026).

Kozáková, E. (2021) Direct leadership in the Czech Armed Forces. PhD thesis. Brno: University of Defence.

Mayer J. D., Salovey P., Caruso D. R. (2004). Emotional intelligence: Theory, findings, and implications. *Psychological Inquiry*, 15(3), 197–215. https://doi.org/10.1207/s15327965pli1503_02

Miao, C., Humphrey, R.H. and Qian, S. (2020) 'The cross-cultural moderators of the influence of emotional intelligence on organizational citizenship behavior and counterproductive work behavior', Human Resource Development Quarterly, 31(2), pp. 213–233. doi: 10.1002/hrdq.21385.

Moriarty, J. (2018) Leadership in focus: Emotional Intelligence, Leadership and Resilience. Available at: https://www.cove.org.au/conditioning/article-emotional-intelligence-leadershipand-resilience/ (Accessed: 11 June 2019).

Mumford, A. and Gold, J. (2004) Management Development: Strategies for Action. London: McGraw-Hill Education.

Oden, K.B., Lohani, M., McCoy, M., Crutchfield, J. and Rivers, S. (2015) 'Embedding Emotional Intelligence into Military Training Contexts', Procedia Manufacturing, 3, pp. 4052–4059. doi: 10.1016/j.promfg.2015.07.976.

Salovey P., Mayer J. D. (1990). Emotional intelligence. *Imagination, Cognition and Personality*, 9(3), 185–211. https://doi.org/10.2190/DUGG-P24E-52WK-6CDG

Shirmohammadi, M., Hedayati Mehdiabadi, A., Beigi, M. and McLean, G.N. (2021) 'Mapping human resource development: Visualizing the past, bridging the gaps, and moving toward the future', Human Resource Development Quarterly, 32(2), pp. 197–224. doi: 10.1002/hrdq.21415.

Truneček, J. (2004) Management znalostí. Praha: C.H. Beck.

Weinberger, L.A. (2002) 'Emotional intelligence: Its connection to HRD theory and practice', Human Resource Development Review, 1(2), pp. 215–243. doi: 10.1177/15384302001002005.

Agile Mindset Leader as the Leader of the Future: Collective Human and Artificial Intelligence Broker

Wioleta Kucharska[1], Jari Jussila[2] and Maciej Kucharski[1]
[1]Gdańsk University of Technology, Gdansk TECH, Fahrenheit Universities Association, Poland
[2]Häme University of Applied Sciences, HAMK Design Factory, Finland

wioleta.kucharska@pg.edu.pl
jari.jussila@hamk.fi
maciej.kucharski@pg.edu.pl

Abstract: As artificial intelligence (AI) takes on a larger role in knowledge work, understanding the psychological and collective factors that enable successful human-AI collaboration becomes critical. This study examines how agile versus non-agile mindsets, conceptualized as cognitive-motivational orientations towards change, experimentation, and iterative learning, relate to collective human intelligence and to employees' adoption of AI at work. Also investigating how these factors jointly contribute to organizational intelligence. The study involves 3871 knowledge workers: 1871 (initial study) and 2000 (replication) from Poland and Finland, across the IT and OTHER-than-IT sectors. Using structural equation modeling, we found that collective human intelligence strongly predicts organizational intelligence and that AI adoption adds explanatory value by strengthening this relationship. Results suggest the need for inclusive practices that support both change-oriented and stability-oriented employees when designing human-AI work systems. This study contributes to followership theory and to technology-mediated collaboration by specifying mindset-based boundary conditions for collective intelligence in AI-enabled workplaces. Artificial intelligence, agile mindset, collective human intelligence, agile organization.

Keywords: Leader, Agile mindset, Agile mindset leader, Organizational intelligence, AI adoption

1. Introduction

Artificial intelligence (AI) is increasingly embedded in everyday work practices, reshaping how individuals and groups make decisions, coordinate tasks, and learn (Akkaya and Sever, 2022; Luthia, 2023). In organizational settings, AI refers to tools, agents, and technologies that emulate aspects of human cognition and can augment work processes through data-driven inference and prediction (Russell and Norvig, 2021; Sheikh et al., 2023). While AI-enabled collaboration can improve productivity and support continuous improvement in knowledge-intensive tasks (Atolagbe-Olaoye, 2025), realized benefits depend on human factors such as employees' willingness to experiment, redesign routines, and integrate AI into collective work practices, rather than on technological capability alone (Mehta et al., 2025). This makes mindset differences a relevant boundary condition for technology-mediated collaboration (Chew and Mohamed Zainal, 2024). Moreover, AI also brings significant changes to leadership practices oriented toward knowledge, learning, and collaboration cultures, shifting employees toward building collective intelligence to adopt AI and make the best use of it to develop an organizationally intelligent, comprehensive, adaptive system, as agile organizations are (Kucharska, 2026; Kucharska and Kucharski, 2026). In this context, agile leadership involves integrating human and artificial intelligence, where AI reduces routine managerial tasks and enables leaders to focus on higher-level decision-making (Tominc et al., 2023). However, this transformation also presents significant challenges. Leadership competencies in the era of artificial intelligence are more complex and demanding than ever before (Bock and von der Oelsnitz, 2025; Zaidi et al., 2025).

Agile mindset leaders seem to be precisely the kind of leadership that a currently challenging, volatile, uncertain, complex, and ambiguous world needs (Akkaya and Sever, 2022). However, leadership quality is always reflected in followers' outcomes (Udin, 2025). Although prior work highlights the role of agile leadership (Akkaya and Sever, 2022) and the evolving competency demands of AI-era leadership (Bock and von der Oelsnitz, 2025; Zaidi et al., 2025), less is known about how agile- and non-agile mindset employees, together with agile mindset leaders, differentially contribute to collective human intelligence and to AI adoption in knowledge-driven organizations oriented toward intelligence building. Following followership theory, which emphasizes leadership as a co-created process that involves followers' contributions (Uhl-Bien et al., 2014), we examine how leaders' and followers' mindsets relate to collective human intelligence, AI adoption, and organizational intelligence in AI-enabled workplaces.

2. Conceptual Framework

Followership theory (Uhl-Bien et al., 2014) states that leadership fundamentally relies on followers. Specifically, it shifts the focus from leader-centered models to a co-created process in which leaders and followers jointly

contribute to value creation. It suggests that modern leadership requires today's active, engaged, committed, and critical followers. This study then explores how organizational intelligence advances through the insights of agile- and non-agile-mindset followers who thrive under an agile-mindset leader. This study aims to expand this theory by empirically demonstrating the critical importance of leaders' and followers' agile mindsets in fostering collective human intelligence, embracing AI adaptability, and driving overall organizational intelligence.

2.1 Agile Mindset Leaders and Their Agile and Non-agile Followers

Agile organizations thrive on a dynamic culture of agility, strong leadership, and active employee engagement (Kucharska et al., 2026b; Nold and Michel, 2016). Research by Eilers et al. (2022) and Ozkan et al. (2023) powerfully illustrates the pivotal role that employees' mindsets play in cultivating agility. Furthermore, Kucharska et al. (2026a, 2026c) emphasize that agile leaders are not just important—they are essential to the success of agile organizations—by providing compelling evidence of their impact on both agile and non-agile teams. Moreover, social interactions between leaders and their followers directly shape organizational performance (Lehmann-Willenbrock, 2024). So, studying these relations matters. Finally, leadership is defined as "the process through which an individual becomes influential to relevant others in a manner that involves the implicit or explicit granting of the leader role" (Badura et al., 2022, p. 2070), clearly suggesting the need to consider the leader's impact on their followers when exploring any kind of organizational performance, including intelligence building, as this study focuses on. Building on these insights, we propose the following hypotheses:

H1a Agile mindset leader impacts directly and positively agile mindset followers.

H1b Agile mindset leader impacts directly and positively non-agile mindset followers.

2.2 Agile Mindset Leaders and Their Followers' Impact on Collective Human Intelligence

Collective intelligence, broadly conceived, refers to the adaptive behavior groups achieve through interactions among members (Falandays et al., 2023; Leimeister, 2010; Secundo et al., 2016). Importantly, this adaptive capacity emerges at the macro level and can exceed what any individual member could achieve alone (Cui and Yasseri, 2024; Falandays et al., 2023). Since an organization exists as a collective body, its agility relies heavily on cultivating such collective intelligence. Collective human intelligence (CHI) thus embodies the shared ability to take smart action as a whole, going beyond a simple aggregation of individual capabilities and emphasizing what people can accomplish together (Kucharska, 2025). Although research shows that many organizational competencies are shaped through collective, interaction-based processes and that collectivistic orientations can strengthen key team capabilities, their importance varies depending on the competence and context (Bablo et al., 2023; Hagemann and Kluge, 2017). Therefore, the following hypotheses are formulated:

H2a Agile mindset employees impact CHI directly and positively.

H2b Non-agile mindset employees have a direct and negative impact on CHI.

2.3 AI Adoption (AIa)

Technological innovations support organizational intelligence processes (Volberda et al., 2021), and AI technologies do as well. However, Ardichvili (2022) argues that AI systems pose a significant threat to organizational intelligence by undermining the expertise of veteran members. In his opinion, this decline in expertise arises from diminished opportunities for collaborative learning and reduced engagement with complex tasks that foster skill development and deliberate practice. Recently, Kucharski et al. (2025) demonstrated that collective higher-level learning skills, known as organizational dynamic capabilities (Winter, 2003), are strongly dependent on leaders' agile mindsets. Taken together, these findings suggest that the risks identified by Ardichvili (2022) are more strongly associated with characteristics of a non-agile mindset than with those of an agile orientation. Furthermore, as is often the case, AI's adaptability is influenced by individual personality traits (Riedl, 2022). Although many enthusiasts argue that interactions with machines can surpass those with humans in areas such as efficiency, trustworthiness, impartiality, and even altruistic behavior (Sundar and Kim, 2019), empirical evidence remains mixed and highly context-dependent (Ishowo-Oloko et al., 2019). Algorithms can outperform humans on certain structured tasks, particularly in terms of consistency, objectivity, or efficiency, but these advantages often depend on task characteristics and may involve trade-offs with transparency, fairness, or human values (Ishowo-Oloko et al., 2019). Likewise, trust in AI is not uniformly higher: people frequently exhibit initial skepticism or algorithm aversion (Burton et al., 2020), especially when ethical considerations are salient. Thus, these optimistic claims should be understood as reflecting a particular strand of enthusiasm rather than a universal empirical reality.

This perspective helps explain why some individuals embrace AI readily. Interpreting machine logic as consistent and unbiased can foster a positive relationship with AI and enhance willingness to adapt to its capabilities. However, cognitive complacency may arise when human decision-makers fail to question the reasoning behind algorithmic outputs (Araujo et al., 2020). Conversely, distrust may emerge when AI systems are perceived as opaque or uncontrollable, particularly among individuals with low tolerance for ambiguity or high need for predictability. Prior research shows that personality traits such as low openness and higher anxiety are associated with reduced trust in algorithmic systems, especially under conditions of uncertainty and limited transparency (De Freitas et al., 2023). These tendencies align with stability-oriented cognitive styles, suggesting that individual differences can significantly shape attitudes toward AI acceptance. At a deeper level, AI directly and indirectly reshapes working routines (Del Giudice et al., 2023). Regarding the impact of non-agile mindsets on AI adaptability, we assume that such employees may initially respond with skepticism that is consistent with their broader resistance to change, but may eventually become enthusiastic adopters when AI demonstrably simplifies their work. Based on all the above, the following hypotheses are formulated:

H3a Agile mindset employees impact AIa directly and positively.

H3b Non-agile mindset employees' impact AIa directly and positively.

Moreover, Jarrahi et al. (2023) suggest that organizations should foster human–AI partnerships grounded in people, technological infrastructures, and processes to optimize integrity. Zirar et al. (2023) further emphasize that effective AI–human coexistence requires higher-level technical, social, cognitive, and conceptual skills. Importantly, machines cannot recognize broader contextual cues; tacit knowledge emerges from a combination of contextual signals, experience, and expertise. This makes the superiority of human intelligence, particularly that associated with agile mindsets, logical in tasks requiring flexible, context-sensitive judgment (Kucharska, 2025). From this perspective, collective human intelligence must upshift and evolve continually to maximize the benefits of AI technologies. At the same time, humanity must collectively adapt to the new working realities AI creates, as the relationship between artificial and human intelligence is inherently bidirectional. Since this study examines how employees with agile and non-agile mindsets contribute to organizational intelligence development through AI adaptability, the following hypotheses are formulated:

H3c: CHI directly and positively impacts AIa.

2.4 Organizational Intelligence (OI)

The combination of human and artificial intelligence (named augmented intelligence) plays a crucial role in driving organizational performance (French and Shim, 2025). AI supports performance and enhances employees' cognitive skills, whereas skilled employees foster AI adoption. In this way, augmented intelligence constitutes organizational intelligence. Augmentation, considered 'weak', focuses on automating tasks performed by a human worker (human replacement). It impacts business by improving efficiency and reducing costs. 'Strong augmentation' combines AI with human input (e.g., assessment) to change business processes (Hurwitz et al., 2019). Successful AI adoption and 'strong augmentation' are related (Neumann et al., 2026). Organizational intelligence is defined as the effective use of relevant knowledge in a business context, and the best effects are achieved when human collective and artificial intelligence synergize (Kucharska, 2025, p. 1), as Kucharska and Kucharski (2026) empirically confirm. Therefore, based on this perspective, the following hypotheses are proposed:

H4: CHI impacts OI directly and positively.

H5: AIa directly and positively impacts OI.

2.5 Expected Mediations

Apart from the above direct relations, the following indirect relations are expected:

- AML impact on CHI is expected to be mediated by agile and non-agile mindset employees.
- The impact of agile and non-agile mindset employees on AIa is expected to be mediated by CHI.
- CHI's impact on AI is expected to be mediated by AIa.

3. Methodology

The models presented reflect the perceptions of knowledge workers, specialists, and managers from Poland and Finland. The data were collected in March 2025 (N=1871 initial study) and in March 2026 (N=2000 replication), applying the CAWI (Computer-Assisted Web Interview) method. The total sample size is 3871 cases (country

input, position, mindset view, and gender balance secured). We selected initial and replication sample participants from the same research panel each year. However, we did not verify whether the same individuals gave informed consent to participate in the survey every year.

The study was designed to compare agile (AM) and non-agile (nAM) mindsets; therefore, the sample was balanced to include individuals with both mindsets, facilitating this comparison and supporting the study's goals. One of the 'qualification questions' asked respondents to self-assess their agility. We asked: *Which statement describes you better (a or b)? a) I like changes and intellectual challenges; I usually adapt quickly to new situations; I am eager to find and implement new solutions (AM); b) I don't like changes; I prefer quiet work in predictable conditions over chasing challenges; I rely on proven solutions instead of trying new things (nAM).* Consequently, we split the general sample (N=1871/2000 initial/replication) into two subsamples: first, those who described their attitudes as closer to agile (N=932/1000), and second, those who described their attitudes as closer to non-agile mindset characteristics (N=939/1000). It is worth stressing that such a balanced structure is purposeful for the study's aims (50/50) and is a consequence of the entire study aim. Models always simplify reality, just as ours do, within the purpose and scope of the study, allowing us to focus more deeply on the impact of agile and non-agile mindsets on collective human intelligence, embracing AI adaptability, and driving overall organizational intelligence. That's exactly why we designed the sample to be mindset-balanced (Dataset availability, Kucharska, 2026b).

Supplementary materials (SM), Appendix 1 provides details on the measurement scales used, their sources, and their reliabilities. The cross-loading matrix (SM, Appendix 2) proves the sound quality of all measures (loadings exceed 0,5 and scales do not overlap). Moreover, the KMO (Kaiser-Meyer-Olkin) test of sample adequacy (0.965/0.976), the total variance explained (66%/66%), and Harman's single-factor test (39%/35%) are all acceptable (Byrne, 2016). The common method bias (CMB) common latent factor test result was (0.29/0.40), allowing us to proceed with further analysis. Because our sample includes responses from participants in two distinct countries and focuses on two opposing mindsets, we applied a measurement invariance procedure to ensure respondents across groups interpreted the measurement instrument similarly, thereby supporting its quality. In short, we ran two invariance procedures (SM, Appendix 3): Poland-Finland and agile and non-agile mindset (self-assessment). This robust analysis enables us to proceed to the next step: validity analysis, which highlights the perspectives of participants with agile and non-agile mindsets. Next, validity analysis (SM, Appendix 4) showed that, across all examined samples from the initial study for agile leader mindset (AML) and agile mindset employees (AMe), as well as for collective human intelligence (CHI) and organizational intelligence (OI), the Fornell-Larcker criterion was not met. In the replication samples, the same issue was only observed between the CHI and OI variables. Therefore, Heterotrait-Monotrait (HTMT) analysis, which is considered more reliable than the widely used Fornell-Larcker criterion, was performed to assess discriminant validity (Henseler et al., 2015). This analysis yielded very good results for the initial sample (SM, Appendix 5), indicating that the observed correlations are likely due to genuine strong interdependence rather than poor measures. Regarding replication samples, the HTMT analysis shows that, among non-agile mindset participants, the discriminant validity of the CHI and OI variables is indeed liberal. This suggests that in the non-agile-minded respondents sample, these constructs (variables) are statistically close. Since the meanings of the two constructs are clearly distinct (SM, Appendix 1), we view this as a result of a strong natural dependence between collective human and organizational intelligence. If so, it underscores how critical the development of collective human intelligence is. This conclusion is supported by the previous analysis of CMB, cross-loading, and invariance results, all of which indicate good measurement quality. The other replication samples (the total sample and the agile mindset participants sample) demonstrate excellent discriminant validity (SM, Appendix 5).

So far, the initial and replication samples confirm the strong discriminant validity of the measures and suggest a close, natural link between collective human and organizational intelligence, highlighting the importance of developing collective human intelligence. To verify this assumption, the SEM models will be run on both the initial and replication samples, with the aim of building a strong evidence base. A replication study is considered the best way to assess the reliability of any empirical evidence (Freese and Peterson, 2017).

4. Results

Overall, the findings (initial and replicated) emphasize the crucial role of collective human intelligence (CHI) in developing organizational intelligence (OI) and demonstrate that AI adoption (AIa) significantly enhances the development of organizational intelligence. Therefore, as expected, the synergy of CHI and AIa best serves OI. Furthermore, the initial and replicated results indicate that leaders with an agile mindset, along with their agile-minded followers, contribute most to the creation of collective human intelligence. The impact of non-agile

employees (nAMe) on human collective intelligence is not significant (based on the initial sample), nor is the impact of agile-minded leaders (AML) on non-agile employees (nAMe) - the replication shows opposite results for all samples in this matter. However, the results for agile-minded participants in the replication are close to those observed in the initial sample, indicating a weak impact of AML on them. The AML impact on nAMe is noted as significant, but weak (H1b replication β=0.08*). Also, the nAMe impact on collective human intelligence is significant relative to the initial sample, and this is confirmed by all replication sample results. It suggests that the attitude of non-agile staff toward agility and AI adoption improves over time, and it is positive, but agile mindset employees are still much more involved in building collective human intelligence. Regarding AI adoption in the initial sample, the direct impact of AME is significant for both the TOTAL and agile mindset (AM) samples. The views of non-agile mindset respondents suggest that AMe has an indirect impact on AIa, with CHI fully mediating this effect. In the replication, CHI fully mediates the relationship between AMe and AIa, except in the non-agile mindset sample, where complementary mediation is observed. In fact, it is the opposite of what we observed at the initial study stage. But since all the obtained significant results between AMe and AIa are weak (*), this suggests that collective human intelligence strongly mediates this relation. Findings are detailed in Table 1, a) initial, b) replication, and illustrated in Figure 1.

Table 1: Hypotheses verification

a) initial sample

Hypothesis	TOTAL SAMPLE *n=1871; χ^2=2084.47(518) Cmin/df=4.02* *CFI=.963 TLI=.966* *RMSEA=.040(.038-.042)*		AGILE MINDSETS view *n=932; χ^2=1369.58(518) Cmin/df=2.64* *CFI=.965 TLI=.962* *RMSEA=.042(.039-.045)*		non-AGILE MINDSETS view *n=939; χ^2=1564.48(518) Cmin/df=3.20* *CFI=.954 TLI=.950* *RMSEA=.046(.044-.049)*	
	β	VERIFICATION	β	VERIFICATION	β	VERIFICATION
H1a (+)	.80***	*sustained*	.80***	*sustained*	.79***	*sustained*
H1b (+)	ns	rejected	ns	rejected	ns	rejected
H2a (+)	.65***	*sustained*	.70***	*sustained*	.60***	*sustained*
H2b (+)	ns	rejected	ns	rejected	ns	rejected
H3a (+)	.09*	*sustained*	.13*	*sustained*	ns	*rejected*
H3b (+)	.07**	*sustained*	.ns	*rejected*	.14***	*sustained*
H3c (+)	.48***	*sustained*	.48***	*sustained*	.47***	*sustained*
H4 (+)	.70***	*sustained*	.77***	*sustained*	.67***	*sustained*
H5 (+)	.21***	*sustained*	.14***	*sustained*	.25***	*sustained*
MEDIATIONS ANALYSIS*						
Mediation expected	INDIRECT EFFECT	Mediation detected	DIRECT/INDIRECT IMPACT	Mediation detected	DIRECT/INDIRECT IMPACT	Mediation detected
AML->AMe->CHI	.491(***)	complementary	.61(***)	complementary	.40(***)	complementary
AML->nAMe->CHI	.000(.824)	no mediation	-.001(.563)	no mediation	.000(.760)	no mediation
AMe->CHI->AIa	.310(***)	complementary	.329(***)	complementary	.282(***)	full mediation
nAMe->CHI->AIa	-.002(.747)	no mediation	-.006(.282)	no mediation	.003(.747)	no mediation
CHI->AIa->OI	.117(***)	complementary	.07(*)	complementary	.15(***)	complementary

b) replication sample

Hypothesis	TOTAL SAMPLE *n=2000; χ^2=3198.4(964)* *Cmin/df=3.31* *CFI=.970 TLI=.968* *RMSEA=.034(.033-.035)*		AGILE MINDSETS view *n=1000; χ^2=2703.47(1013)* *Cmin/df=2.66* *CFI=.956 TLI=.953* *RMSEA=.041(.039-.043)*		non-AGILE MINDSETS view *n=1000; χ^2=2666.43(1013)* *Cmin/df=2.63* *CFI=.957 TLI=.954* *RMSEA=.040(.039-.042)*	
	β	VERIFICATION	β	VERIFICATION	β	VERIFICATION
H1a (+)	.73***	*sustained*	.72***	*sustained*	.74***	*sustained*
H1b (+)	.18***	*sustained*	.07*	*sustained*	.30***	*sustained*
H2a (+)	.73***	*sustained*	.74***	*sustained*	.73***	*sustained*
H2b (+)	.18***	*sustained*	.19***	*sustained*	.16***	*sustained*
H3a (+)	ns	*rejected*	ns	*rejected*	.09*	*sustained*
H3b (+)	.28***	*sustained*	.24***	*sustained*	.28***	*sustained*
H3c (+)	.38***	*sustained*	.39***	*sustained*	.42***	*sustained*
H4 (+)	.82***	*sustained*	.84***	*sustained*	.78***	*sustained*
H5 (+)	.10***	*sustained*	.07*	*sustained*	.18***	*sustained*
MEDIATIONS ANALYSIS*						
Mediation expected	INDIRECT EFFECT	Mediation detected	DIRECT/INDIRECT IMPACT	Mediation detected	DIRECT/INDIRECT IMPACT	Mediation detected
AML->AMe->CHI	.522(***)	complementary	.515(***)	complementary	.517(***)	complementary
AML->nAMe->CHI	.032(***)	complementary	.013(.059)	no mediation	.046(***)	complementary
AMe->CHI->AIa	.435(***)	full mediation	.441(***)	full mediation	.477(***)	complementary
nAMe->CHI->AIa	.071(***)	complementary	.077(***)	complementary	.068(***)	complementary
CHI->AIa->OI	.037(***)	complementary	.02(*)	complementary	.069(***)	complementary

Note: ML – maximum likelihood, standardized results; *p< 0.05, **p<0.01, ***p<0.001; ns- not significant result; mediation effects were measured by 2000 bootstrap samples, 90 confidence intervals, two-tailed significance effects

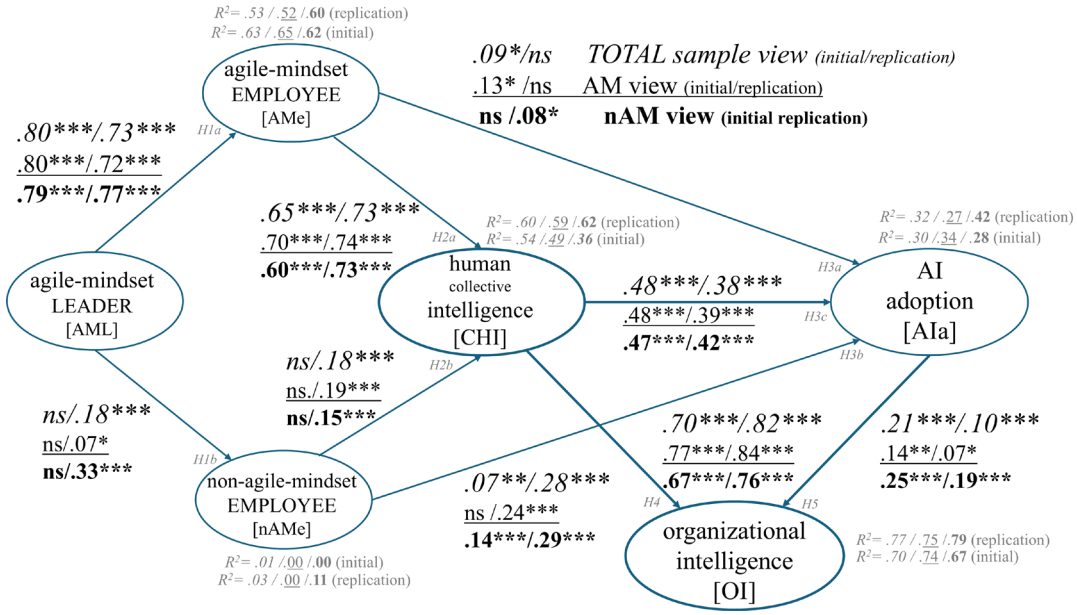


Figure 1: Results

Note: AML- agile minded leader; AME-agile minded employee; nAMe – non-agile minded employee; CHI – collective human intelligence; AIa – artificial intelligence adoption; OI- organizational intelligence ML – maximum likelihood, standardized results; *p< 0.05, **p<0.01, ***p<0.001; ns- not significant result

INITIAL STUDY

a) TOTAL SAMPLE *n=1871; χ^2=2084.47(518) Cmin/df=4.02 CFI=.963 TLI=.966 RMSEA=.040(.038-.042)*

b) AGILE MINDSETS view *n=932; χ^2=1369.58(518) Cmin/df=2.64 CFI=.965 TLI=.962 RMSEA=.042(.039-.045)*

c) non-AGILE MINDSETS view *n=939; χ^2=1564.48(518) Cmin/df=3.02 CFI=.954 TLI=.950 RMSEA=.046(.044-.049)*

REPLICATION STUDY

a) TOTAL SAMPLE *n=2000; χ^2=3198.4(964) Cmin/df=3.31 CFI=.970 TLI=.968 RMSEA=.034(.033-.035)*

b) AGILE MINDSETS view *n=1000; χ^2=2703.47(1013) Cmin/df=2.66 CFI=.956 TLI=.953 RMSEA=.041(.039-.043)*

c) non-AGILE MINDSETS view *n=1000; χ^2=2666.43(1013) Cmin/df=2.63 CFI=.957 TLI=.954 RMSEA=.040(.039-.042)*

5. Discussion

The given empirical models showed that leaders with an agile mindset serve as brokers of organizational intelligence. Their increasing positive influence over time on agile and non-agile mindset staff and collective intelligence leads us to conclude that agile mindset leaders are the leaders of the future. What warrants a more in-depth discussion is their impact on non-agile-minded staff changing over time. From the initial study results perspective, agile mindset leaders may be experienced as stressors by employees who have a stronger preference for stability and predictability, and such a collision of mindsets can cause serious tension, which Kucharska et al. (2026a) named an 'agile mindset leader paradox.' Thus, the initial study's results confirm its existence and justify the need to find a way to mitigate it. However, the replication shows that the positive impact of the agile mindset leader on both agile and non-agile staff increases over time, which we see as confirmation of the agile mindset leader's exceptional abilities, as stressed earlier by these authors.

The other findings related to non-agile staff also require comment. Specifically, the impact of nAMe on CHI, which was initially not significant, became positive over time. Taken together, these patterns suggest that, in organizational contexts strongly oriented toward rapid change and intelligence development, employees who prefer stability and predictability may experience a weaker fit with prevailing norms and practices, which can limit (or complicate) collective intelligence building, but replication results suggest they can adopt. In such a context, the collective intelligence-building effort seems even more pressing but, at the same time, more challenging than expected at the theoretical assumption stage. This is because, going back to the 'agile mindset leader paradox' (Kucharska et al., 2026a) essence, employees who prefer stability and predictability are often in the majority in organizations, and, if they feel excluded, may be less willing to engage with or support change initiatives to protect their sense of psychological safety and well-being – both of which support performance (Aubouin-Bonnaventure et al., 2024). Moreover, Ambituuni et al. (2021) suggested that some people are naturally more comfortable with agile work practices, whereas others may be less inclined toward such practices. This suggests that agile and non-agile employees may benefit from differentiated managerial approaches and virtuous organizational practices to mitigate tension, which is critical for building collective intelligence. Kucharska et al. (2026a) suggested that an AML leader can be an antidote to this, and the given results seem to confirm it.

Importantly, employees who prefer stability and predictability can also offer complementary strengths that organizations may need alongside agility. Individuals with a stronger stability orientation may play essential roles in maintaining organizational memory, ensuring operational reliability, and providing the consistency needed for long-term performance. Thus, leading employees wisely requires mastery of ambidexterity – agile mindset leaders master it (Kucharska et al., 2026a, 2026b; Lewis et al., 2014). Nevertheless, further qualitative studies are needed to better understand relations between agile and non-agile staff and to propose more detailed solutions.

5.1 Limitations and Implications

Trust, critical thinking skills, company culture type: adhocracy, market, clan, hierarchy (Cameron and Freeman, 1991), knowledge, learning, and collaboration functional cultures, and the overall technological advancement of the organizations are elements included in Kucharska's (2025) organizational intelligence building framework,

and those factors are omitted in this study. So, the observed positive change in the impact of non-agile staff on CHI over time may actually be due to another overlooked factor. We do not know what it is, and it is worth further clarification. Further studies would provide more insight into the relationships examined. Additionally, the study samples are drawn from the IT sector and also include a mix of other sectors. However, more specific sectoral research would help us better understand the relationship between leaders' agility and organizational intelligence. Agility competencies are clearly most developed in IT. However, this approach is increasingly applied across other sectors.

The study resulted in the following practical conclusions:

- Leaders with an agile mindset have a strong positive impact on other agile mindset staff and help build collective intelligence within organizations.
- The significant positive impact on agile and non-agile mindset staff and on collective intelligence leads us to conclude that agile mindset leaders are leaders of the future; therefore, organizations should search for and employ agile mindset leaders.
- The "agile mindset leader paradox" highlights that non-agile staff, often being the majority, can feel excluded and may resist changes to protect their psychological well-being, which can hinder organizational development. So, leaders should pay special attention to securing smooth cooperation between agile and non-agile staff.
- To address this, organizations should:
- *Recognize that agile and non-agile staff require different management approaches and organizational practices.*
- *Develop strategies to mitigate tensions between these groups, as this is crucial for building collective intelligence.*
- *Value the strengths of non-agile staff, such as their roles in maintaining stability, organizational memory, and operational reliability.*
- *Aim for managerial ambidexterity—balancing agility with stability—to lead all employees efficiently.*

5.2 Conclusion

This study shows that in a business world increasingly driven by artificial intelligence, an agile mindset leader can be important in helping individuals and organizations adapt effectively to AI-enabled work. The research emphasizes that leaders with such a mindset play a vital role in nurturing organizational intelligence (augmentative). Moreover, they can implement new managerial approaches and adopt best practices to support both employees who readily embrace change and those who prefer greater stability and predictability, while respecting the strengths and trade-offs of both orientations. An agile mindset leader's paradox, rooted in the collision of mindsets, is one of the key challenges to address in an AI-driven world, and agile mindset leaders are best suited to manage it.

Supplementary materials and dataset access: https://doi.org/10.34808/vmmm-xe55

Funder: National Science Center (NCN), Poland **NCN UMO-2022/47/B/HS4/00597**

Ethics Declaration: Gdansk University of Technology Ethics Committee approval: KEBNzUCz 01_2026.

AI usage declaration: Gemini Notebook (reference checking), Grammarly (language)

References:

Akkaya, B. and Sever, E. (2022), "Agile leadership and organization performance in the perspective of VUCA", *Post-Pandemic Talent Management Models in Knowledge Organizations*. https://doi.org/10.4018/978-1-6684-3894-7.ch010

Ambituuni, A., Azizsafaei, F. and Keegan, A. (2021), "HRM operational models and practices to enable strategic agility in PBOs: Managing paradoxical tensions", *Journal of Business Research*, Vol. 133, pp. 170-182. https://doi.org/10.1016/j.jbusres.2021.04.048

Araujo, T., Helberger, N., Kruikemeier, S. and De Vreese, C.H. (2020), "In AI we trust? Perceptions about automated decision-making by artificial intelligence", *AI & Society*, Vol. 35 No. 3. https://doi.org/10.1007/s00146-019-00931-w

Ardichvili, A. (2022), "The impact of artificial intelligence on expertise development: Implications for HRD", *Advances in Developing Human Resources*, Vol. 24 No. 2, pp. 78–98. https://doi.org/10.1177/15234223221077304

Atolagbe-Olaoye, A. (2025), "Collaborative information behavior and human-ai context in group work: The perspectives of agile practitioners", *International Journal of Library and Information Services* (IJLIS), Vol. 13 No.1, pp. 1-16. https://doi.org/10.4018/IJLIS.366590

Aubouin-Bonnaventure, J., Chevalier, S., Lahiani, F.J. and Fouquereau, E. (2024), "Well-being and performance at work: a new approach favourable to the optimal functioning of workers through virtuous organisational practices", *International Journal of Organizational Analysis*, Vol. 32 No. 4, pp. 608-623. https://doi.org/10.1108/IJOA-01-2023-3584

Bablo, J., Marcinkowski, B. and Przybylek, A. (2023), "Overcoming challenges of virtual Scrum teams: Lessons learned through an action research study", *Agile Processes in Software Engineering and Extreme Programming. XP 2023. Lecture Notes in Business Information Processing*. Springer, Cham. https://doi.org/10.1007/978-3-031-33976-9_3

Badura, K.L., Galvin, B.M. and Lee, M.Y. (2022), "Leadership emergence: An integrative review", Journal of Applied Psychology, Vol. 107 No. 11, 2069-2100. https://doi.org/10.1037/apl0000997

Bock, T. and von der Oelsnitz, D. (2025), "Leadership-competences in the era of artificial intelligence – a structured review", *Strategy and Leadership*, Vol. 53 No. 3, pp. 235-255. https://doi.org/10.1108/SL-09-2024-0100

Burton, J.W., Stein, M.K. and Jensen, T.B. (2020), "A systematic review of algorithm aversion in augmented decision making", *Journal of Behavioral Decision Making*, Vol. *33* No. 2, pp. 220-239. https://doi.org/10.1002/bdm.2155

Byrne, B.M. (2016), *Structural Equation Modeling with Amos*, Routledge.

Cameron, K.S. and Freeman, S.J. (1991), "Cultural congruence, strength and type: relationships to effectiveness", *Research in Organizational Change and Development*, Vol. 5, pp. 23-58.

Chew, Y.C. and Mohamed Zainal, S.R. (2024), "A sustainable collaborative talent management through collaborative intelligence mindset theory: A systematic review," *Sage Open*, Vol. *14 No.* 2, 21582440241261851.

Cui, H., and Yasseri, T. (2024), "AI-enhanced collective intelligence", *Patterns*, Vol. *5* No. 11. https://doi.org/10.1016/j.patter.2024.101074

De Freitas, J., Agarwal, S., Schmitt, B. and Haslam, N. (2023), "Psychological factors underlying attitudes toward AI tools", *Nature Human Behaviour*, Vol. *7* No. 11, pp. 1845-1854. https://doi.org/10.1038/s41562-023-01734-2

Del Giudice, M., Scuotto, V., Ballestra, L.V. and Pironti, M. (2023), "Humanoid robot adoption and labour productivity: a perspective on ambidextrous product innovation routines", in *Artificial Intelligence and International HRM* (pp. 33-59). Routledge.

Eilers, K., Peters, C. and Leimeister, J.M. (2022), "Why the agile mindset matters", *Technological Forecasting and Social Change*, Vol. 179, 121650. https://doi.org/10.1016/j.techfore.2022.121650

Falandays, J.B., Kaaronen, R.O., Moser, C., Rorot, W., Tan, J., Varma, V., ... and Youngblood, M. (2023), "All intelligence is collective intelligence," Journal of Multiscale Neuroscience, Vol. 2 No. 1, pp. 169-191. https://doi.org/10.56280/1564736810

Freese, J. and Peterson, D. (2017), "Replication in social science", *Annual Review of Sociology*, Vol. 43, pp. 147-165. https://doi.org/10.1146/annurev-soc-060116-053450

French, A.M. and Shim, J.P. (2025), "From artificial intelligence to augmented intelligence: a shift in perspective, application, and conceptualization of AI", *Information Systems Frontiers*, Vol. 27 No. 4, pp. 1345-1366. https://doi.org/10.1007/s10796-024-10562-2

Hagemann, V. and Kluge, A. (2017), "Complex problem solving in teams: the impact of collective orientation on team process demands", *Frontiers in Psychology*, Vol. 8, 1730. https://doi.org/10.3389/fpsyg.2017.01730

Henseler, J., Ringle, C.M. and Sarstedt, M. (2015), "A New Criterion for Assessing Discriminant Validity in Variance-based Structural Equation Modeling", *Journal of the Academy of Marketing Science*, Vol. *43 No.* 1, pp. 115–135. https://doi.org/10.1007/s11747-014-0403-8

Hurwitz, J., Morris, H., Sidner, C. and Kirsch, D. (2019), *Augmented intelligence: the business power of human–machine collaboration*. Auerbach Publications.

Ishowo-Oloko, F., Bonnefon, J.F., Soroye, Z., Crandall, J., Rahwan, I. and Rahwan, T. (2019), "Behavioural evidence for a transparency–efficiency tradeoff in human–machine cooperation", *Nature Machine Intelligence*, Vol. 1 No. 11, 517-521. https://doi.org/10.1038/s42256-019-0113-5

Jarrahi, M.H., Askay, D., Eshraghi, A., and Smith, P. (2023), "Artificial intelligence and knowledge management: A partnership between human and AI", *Business Horizons*, Vol. 66 No. 1, pp. 87–99. https://doi.org/10.1016/j.bushor.2022.03.002

Kucharska, W. (2025), *Organizational Intelligence for Change Adaptability: The Knowledge, Learning, and Collaboration Cultures Approach.* Routledge.

Kucharska, W. (2026a), "How do the internal dynamics of agile and non-agile mindset employees, influenced by agile culture, impact organizational change management?", *Journal of Organizational Change Management*, Vol. 39 No. 8, pp. 216-232. https://doi.org/10.1108/JOCM-12-2025-1093

Kucharska, W. (2026b). Agile mindset and collective human and artificial intelligence [Data set]. Gdańsk University of Technology. https://doi.org/10.34808/vmmm-xe55

Kucharska, W. and Kucharski, M. (2026), "Agile culture, collective human intelligence and AI adoption: Gender and sectoral perspectives on augmented intelligence in Europe", *International Journal of Information Management Data Insights*, Vol. 6 No. 1, Article 100406. https://doi.org/10.1016/j.jjimei.2026.100406

Kucharska, W., Balcerowski, T., Kucharski, M., Jussila, J. and Laanti, M. (2026a), "Why does the agile leader mindset matter the most? The agile-mindset leadership paradox", *Heliyon*, Vol. 12 No. 4, Article 44638. https://doi.org/10.1016/j.heliyon.2026.e44638

Kucharska, W., Kucharski, M. and Jussila, J. (2026b), "When agile and non-agile mindsets collide: mastering paradox management to navigate the VUCA", *Strategy & Leadership*. https://doi.org/10.1108/SL-04-2026-0201

Kucharska, W., Kucharski, M. and Jussila, J. (2026c), "Agile-minded leadership as agile-cultural practice. Leaders' and followers' views per gender", *Gender in Management*. https://doi.org/10.1108/GM-05-2025-0253

Kucharski, M., Kucharska, W. and Jussila, J. (2025), "Impact of Agile Software Development Team Leader's Mindset on Dynamic Capabilities for Achieving Organizational Agility", in Proceedings of the 33rd International Conference on Information Systems Development *(ISD 2025)*, Belgrade, Serbia.

Lehmann-Willenbrock, N. (2024), "Dynamic interpersonal processes at work: Taking social interactions seriously," *Annual Review of Organizational Psychology and Organizational Behavior*, Vol. 12.

Leimeister, J.M. (2010), "Collective intelligence", *Business Information Systems Engineering*, Vol. 24, pp. 245–248. https://doi.org/10.1007/s12599-010-0114-8

Lewis, M.W., Andriopoulos, C. and Smith, W.K. (2014), "Paradoxical leadership to enable strategic agility", *California Management Review*, Vol. *56* No. 3, pp. 58-77. https://doi.org/10.1525/cmr.2014.56.3.58

Luthia, M. (2023), "Agile leadership in managing human capital in Industry 4.0", *Agile Leadership for Industry 40: An Indispensable Approach for the Digital Era*, pp. 79–95.

Mehta, P., Chakraborty, D., Rana, N.P., Mishra, A., Khorana, S. and Kooli, K. (2025), "AI-driven competitive advantage: the role of personality traits and organizational culture in key account management", *Journal of Business & Industrial Marketing*, Vol. 40 No. 2, pp. 543–569. https://doi.org/10.1108/JBIM-03-2024-0205

Neumann, M., Bischof, L., Hinz, N.E. … and Przybyłek, A. (2026), "Between Policy and Practice: GenAI Adoption in Agile Software Development Teams", in: Goldman, A. et al. Agile Processes in Software Engineering and Extreme Programming. XP 2026. Lecture Notes in Business Information Processing, vol 578. Springer, Cham. https://doi.org/10.1007/978-3-032-22375-3_18.

Nold, H. and Michel, L. (2016), "The performance triangle: a model for corporate agility", *Leadership and Organization Development Journal*, Vol. 37 No. 3, pp. 341-356. https://doi.org/10.1108/LODJ-07-2014-0123

Ozkan, N., Eilers, K. and Gök, M.S. (2023), "Back to the essential: A literature-based review on agile mindset", in *Proceedings of the 18th Conference on Computer Science and Intelligence Systems*, Vol. 35, pp. 201–211. https://doi.org/10.15439/2023F6360

Riedl, R. (2022), "Is trust in artificial intelligence systems related to user personality? Review of empirical evidence and future research directions", *Electronic Markets*, Vol. 32 No. 4, pp. 2021-2051. https://doi.org/10.1007/s12525-022-00594-4

Russell, S. and Norvig, P. (2021), *Artificial Intelligence: A modern approach*. Pearson.

Secundo, G., Dumay, J., Schiuma, G. and Passiante, G. (2016), "Managing intellectual capital through a collective intelligence approach: An integrated framework for universities", *Journal of Intellectual Capital*, Vol. 17 No. 2, pp. 298–319. https://doi.org/10.1108/JIC-05-2015-0046

Sheikh, H., Prins, C. and Schrijvers, E. (2023), "Artificial Intelligence: Definition and Background", in: *Mission AI. Research for Policy*, Springer, Cham. https://doi.org/10.1007/978-3-031-21448-6_2

Sundar, S.S. and Kim, J. (2019). *Machine heuristic: When we trust computers more than humans with our personal information. Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, Paper no. 538, pp. 1–9. https://doi.org/10.1145/3290605.3300768

Tominc, P., Oreški, D. and Rožman, M. (2023), "Artificial Intelligence and Agility-Based Model for Successful Project Implementation and Company Competitiveness," *Information*, Vol. 14 No. 6. https://doi.org/10.3390/info14060337

Udin, U. (2025), "Agile leadership and employee outcomes: A bibliometric analysis for future research agenda", *Human Systems Management*, Vol. 44 No. 2, pp. 237-248. https://doi.org/10.3233/HSM-240093

Uhl-Bien, M., Riggio, R.E., Lowe, K.B. and Carsten, M.K. (2014), "Followership theory: A review and research agenda", *Leadership Quarterly*, Vol. 25, pp. 83–104. https://doi.org/10.1016/j.leaqua.2013.11.007

Volberda, H., Khanagha, S., Baden-Fuller, C., Mihalache, O.R. and Birkinshaw, J. (2021), "Strategizing in a digital world: Overcoming cognitive barriers, reconfiguring routines and introducing new organizational forms", *Long Range Planning*, Vol. 54 No. 5, 102110. https://doi.org/10.1016/j.lrp.2021.102110

Winter, S.G. (2003), "Understanding dynamic capabilities", *Strategic Management Journal,* Vol. 24, No. 10, pp. 991-995. https://doi.org/10.1002/smj.318

Zaidi, S.Y.A., Aslam, M.F., Mahmood, F., Ahmad, B. and Raza, S.B. (2025), "How Will Artificial Intelligence (AI) Evolve Organizational Leadership? Understanding the Perspectives of Technopreneurs", *Global Business and Organizational Excellence*, Vol. 44 No. 3, pp. 66-83. https://doi.org/10.1002/joe.22275

Zirar, A., Ali, S.I. and Islam, N. (2023), "Worker and workplace Artificial Intelligence (AI) coexistence: Emerging themes and research agenda", *Technovation*, Vol. 124, Article 102747. https://doi.org/10.1016/j.technovation.2023.102747

Transforming Morocco's Prosocial AI Potential: A Multilevel Governance Framework, Prosocial AI Index and National Charter for Sustainable Human Development

Abdelmjid Lafram[1] and Salah Eddine Bahji[2]
[1]School of Information Sciences, Rabat, Morocco
[2]Mohammadia School of Engineers, Mohammed V University, Rabat, Morocco

alafram@esi.ac.ma
salaheddinebahji@research.emi.ac.ma

Abstract: Prosocial artificial intelligence is emerging as a new socio-technical paradigm, shifting AI systems from an instrumental and purely commercial vision to a new conception focused on social values, collective well-being, human dignity, ethics, inclusion and sustainable human development. This research aims to answer the following central question: how can a country in the Global South, such as Morocco, achieve leadership and transform its potential in Prosocial AI? To this end, this conceptual research adopted a qualitative triangulation combining document analysis, semi-structured interviews with national and international experts, and a comparative analysis of international best practices in Prosocial AI. This research explores Morocco's various strengths in prosociality that predispose it to become a pioneering country in Prosocial AI in Africa, highlighting the different actions taken within the framework of the welfare state and public policies, as well as institutional projects and programs, to make AI a driver of socio-economic development and social inclusion. This paper also examines the challenges and obstacles hindering the exploitation of this potential of Prosocial AI. This approach allowed us to develop a multilevel and multidimensional conceptual model. It also enabled us to propose a Prosocial AI Index, a multidimensional composite measurement index, as well as a national charter for prosocial AI, conceived as a normative instrument to guide and direct the development of prosocial AI within the context of an augmented welfare state. The findings of this study have allowed us to highlight the prerequisites and enabling conditions underpinning what we conceptualize as the foundations of prosociality in a Southern State, thereby positioning Morocco as a potential pioneering regional and African hub for Prosocial AI. They also offer a replicable model for emerging economies seeking to align AI innovation with ethical and societal objectives, serving both people and the planet.

Keywords: Prosocial artificial intelligence, Multilevel governance framework, Prosocial AI index, National AI prosocial charter, Sustainable human development

1. Introduction

The world is now transitioning from a VUCA environment to a new, more perplexing era with new societal vulnerabilities: the BANI era, characterized by Brittness, Anxiety, Nonlinearity, and Incomprehensibility (Cascio, 2020). In this context of global challenges, the need for human-centered paradigms is becoming increasingly urgent, raising questions about the societal responsibility of Artifical Intelligence and its contribution to strengthening human well-being, inclusivity and social resilience (Shneiderman, 2022; UNESCO, 2021, OECD, 2019; United Nations, 2024; Floridi et al., 2018).

Indeed, today, we are witnessing a technological revolution marked by the considerable rise of artificial intelligence, which is developing and spreading throughout socio-economic, institutional, and environmental spheres, impacting all public and private institutions and organizations worldwide (Stanford Institute for Human-Centered Artificial Intelligence, 2026). Its development and global diffusion highlight two key observations. The first concerns the gap between the pace of technological progress and existing models of governance, regulation, and institutionalization. The second, also emphasized by the Stanford Institute for Human-Centered Artificial Intelligence (2026), is the predominance of profitability, technical, economic, and financial performance, and productivity ofen prioritized over societal, cultural, and human considerations, as well as the societal impacts of AI.

To govern and regulate the risks associated with artificial intelligence, several normative frameworks have emerged, the most dominant in terms of governance being responsible AI (OECD, 2024), ethical AI (UNESCO, 2021), trustworthy AI (European Commission, 2019), human-centered AI (OECD, 2019), and AI for the common good (ITU, 2023). These main paradigms are complementary and characterized by a lack of systematic operationalization. They focus primarily on the principles of compliance and good conduct, and risk management. Hence the need for an integrative framework oriented towards intentional and proactive prosociality and marked by the operational measurability of AI's societal impacts, a gap that our research asdresses by proposing a Multilevel Governance Framework, a ProSocial AI Index and a National Charter for sustainable human development in the Moroccan context. In this context, Prosocial AI is of paramount

importance as an emerging paradigm and a promising conceptual alternative centered on humanity, collective well-being, equity, and social cohesion, aiming to foster inclusive and sustainable human development.

Few definitions exist for this emerging concept. They converge on the proactive and intentional integration of prosociality in the upstream stages of the design and development of AI-based solutions, placing humans at the heart of the technology. Indeed, Prosocial AI, while attempting to minimize negative effects or externalities throughout the design, development, deployment, piloting, governance, and evaluation processes of solutions, software, platforms, systems, ecosystems, and even organizations, in terms of digital and algorithmic prosociality. It operationalizes the principles in terms of measurable and auditable positive social impact.

The same emphasis of human and planetary well-being and social and human values is found in Walther's (2024) approach, which conceives Prosocial AI as «*a transformative approach aligned with the United Nations Sustainable Development Goals. It advocates for AI systems centered on human values, equity, and sustainability, aiming to enhance healthcare access, efficiency, and affordability, especially for underserved communities, promoting global well-being* » (Walther, 2024). She also defines Prosocial AI as « *AI systems that are tailored, trained, tested, and targeted to bring out the best in and for people and planet* » (Walther, 2024). Other authors such as Floridi et al. (2018) address similar concepts such as AI4People and Good AI Society but do not define Prosocial AI, while others introduce the concept of prosocial behaviors in LLM and conversational agents (Zhou, Y., et al. 2026 ; Kim, et al. 2022, Gupta, P. et al., 2026; Santos, F. P., 2024; Willis, R, 2026).

Morocco is positioning itself among the pioneering countries in Prosocial AI by launching a series of events and actions in this field, notably within the framework of the strategic partnership linking the High Commission for Planning (HCP) and the UNFPA. In this context, this article proposes a multidimensional conceptual model for the governance of prosocial AI, within the context of Morocco as a Global South country best suited, as Walther states, to this type of AI centered on prosociality, or what she calls the “fourth way” (Walther, 2026).

It aims to answer the central question: how can a country in the Global South, such as Morocco, achieve leadership and transform its potential in Prosocial AI? To this end, it explores Morocco’s foundations and assets in prosociality, which predispose it to become a pioneering country in prosocial AI in Africa. This approach has allowed us to develop a multidimensional and multilevel conceptual model which we have named the PHASE Prosocial AI Framework (Prosociality & Public and Collective Value, Human Dignity, Equity & Well-Being, Algorithmic Accountability & Participatory Governance, Social Cohesion & Trust, and Ethical & Environmental Sustainability).It has also enabled us to propose a Prosocial AI Index, a multidimensional composite measurement index, as well as a national charter for prosocial AI, designed as a normative instrument to guide and direct the development of prosocial AI within the context of a strengthened welfare state. Finally, we conclude by identifying the prerequisites and enabling conditions that underpin what we conceptualize as the foundations of prosociality in a developing country, thus positioning Morocco as a potential regional and African hub for prosocial AI. This conceptual model is also replicable for emerging economies seeking to align AI innovation with ethical and societal objectives, serving both people and the planet.

2. Theoretical Framework and Research Methodology

2.1 Theoretical Framework

Within our holistic, systemic, and multidimensional approach to Prosocial AI, and to ground our conceptual model on solid theoretical foundations, we have drawn upon several complementary theories that enrich our multidimensional and multilevel governance architecture for Prosocial AI.This Framework is operationnlized through the Moroccan Prosocial AI Index as a measurement tool and the Moroccan National Charter for Prosocial AI as a normative instrument that defines the principles and guidelines for the conception, development, deployment, governance, use and evaluation of Prosocial AI. To this end, we have mobilized the Public Value Theory (Moore, 1995), the Capability Approach (Sen, 1999; Nussbaum, 2011), and Multi-level Governance Theory (Hooghe & Marks, 2001). In addition, we also relied on the OECD principles (2019), as well as the UNESCO recommendation (2021), the UN report on global AI governance (2024), the European Union's AI ACT (2024) and the NIST AI Risk Management Framework (2023).

2.2 Research Methodology

This research adopts a conceptual model development research design (Jaakkola, 2020) for the construction of our new PHASE governance model for Prosocial AI. This conceptualization process is informed and enriched by qualitative insights through a triangulated qualitative approach combining document analysis, semi-structured interviews with approximately fifteen academic, public, and private sector experts, and a comparative analysis

of international best practices in Prosocial AI. These various sources were used as qualitative material for conceptual guidance, triangulation, awareness-raising, relevance and grounding of the proposed model. Their purpose was not to produce empirical or statistical validation, but rather to strengthen the theoretical robustness, conceptual relevance of our multilevel governance model for AI. This allowed us to operationalize it within a measurement system and subsequently develop the elements of Morocco's first National Charter for Prosocial AI. This methodological approach also enabled us to identify the pillars for developing a national Prosocial AI ecosystem, as well as its conditions and prerequisites, so that Morocco, as a developing country, can transform its Prosocial AI potential into sustainable leadership.

The following sections present the main results of our conceptual modeling process adapted to the Moroccan context. The foundations, challenges, PHASE governance framework, Moroccan Prosocial AI Index (MPAII), Moroccan National Charter for Prosocial AI (MNPAIC), as well as the prerequisites and pillars proposed for Morocco's emergence as a regional leader in prosocial AI, result from an iterative process of analysis and synthesis, informed by scientific literature, document analysis, international benchmarking and expert consultations.

3. Foundations, Achievements and Enabling Assets for the Emergence of Prosocial AI in Morocco

Our analysis of Morocco's potential for prosocial AI has shown that Morocco, as a country in the Global South, possesses a set of constitutional, institutional, strategic, and technological foundations. It also enjoys predispositions toward prosociality inherent in its historical and socio-economic development trajectory. These foundations are favorable to the emergence of prosocial AI and position it to become a pioneer in this field in Africa and the Arab world. In this context, and as illustrated in the figure below, we have identified what we have termed the "Foundations of Prosociality in the Moroccan Social State," which are based on the following elements:

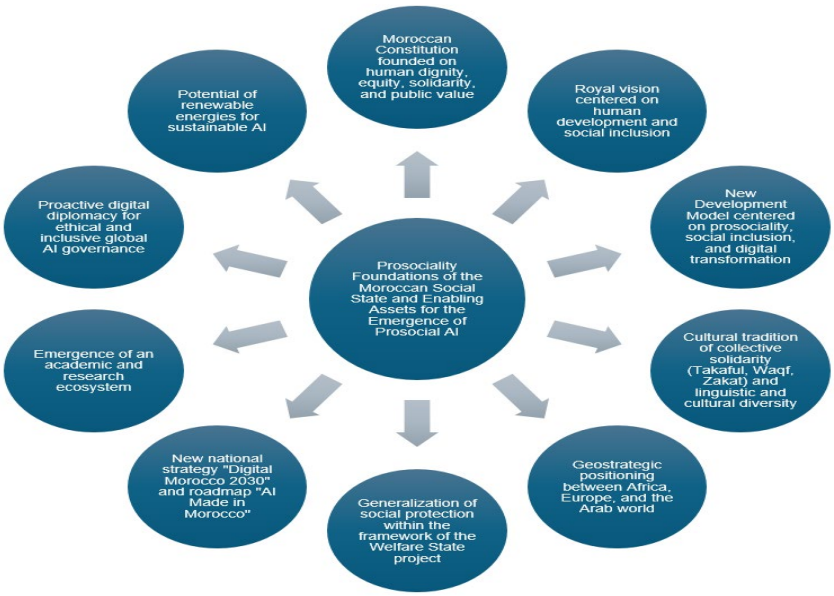


Figure 1: Foundations, Achievements and Enabling Assets for the Emergence of Prosocial AI

- The 2011 Constitution, as a normative foundation: Our analysis of the 2011 Moroccan Constitution revealed that prosociality is a central concept. Indeed, the concept of protection, social aspects, and societal considerations of human rights and sustainable human development are central to the 2011 Moroccan Constitution.
- The Royal Vision and Guidelines of the New Development Model, as strategic orientations, place human rights and the création of public value at the heart of the country's digital transformation and inclusive, integrated, and sustainable development policies.
- Institutional foundations characterized by the creation of several constitutional institutions and numerous public establishments overseeing participatory governance, human rights protection, social inclusion, social dialogue, and the evaluation of the societal impact of public policies such as the Economic, Social and Environmental Council, the Ombudsman of the Kingdom, the Social

Protection Agency, and other socially oriented institutions. This institutional ecosystem will facilitate the implementation of Prosocial AI in Morocco and remains favorable to responsible, ethical, human-centered, and prosocially oriented AI.

- Operational foundations characterized by the launch of the major project of the Social State in Morocco and the generalization of social protection through various institutional and operational mechanisms for the generalization of social protection, the reduction of inequalities, and equitable access to essential public services and social cohesion (Unified Social Register).
- Cultural foundations embodied by cultural traditions, the intrinsic characteristics and civilization of Morocco as a secular country perpetuating the communal values of solidarity, the culmination of collective action, mutual aid, cooperation, and religious practices and values of tolerance, respect for others, solidarity, and the entire heritage of prosociality (Takaful, Zakat, Waqf).

These foundations provide a strong rationale for a deliberate and proactive prosocial approach, making the Moroccan institutional ecosystem favorable to ethical, responsible, and sustainable AI and Prosocial AI. Furthermore, other achievements and accomplishments establishing a suitable and favorable environment for the adoption and development of prosocial AI should be highlighted. Indeed, Morocco has many assets that can position it as an African AI hub and strengthen its leadership and digital influence (Lafram, Bahji, 2024). Thus, several initiatives and actions have been launched by Morocco, reinforcing its strengths and capabilities. These include: the national strategy "Morocco Digital 2030" and its roadmap "AI Made in Morocco"; the national network of Jazari Institutes, comprising 12 centers of excellence covering the Kingdom's 12 regions; the Digital Hub for Sustainable Development (D4SD), in partnership with UNDP; the "AI Movement – The International AI Center of Morocco" ; various initiatives promoting ethical and responsible AI; partnerships with UNESCO and other international organizations; and many other actions demonstrating a proactive digital diplomacy for ethical and inclusive global AI governance.

4. Challenges and Obstacles Limiting the Potential of Prosocial AI in Morocco

Our research also identified the main challenges and obstacles limiting the potential of the Prosocial AI ecosystem in Morocco. As shown in Figure 2 below, these challenges and obstacles can be summarized as follows:

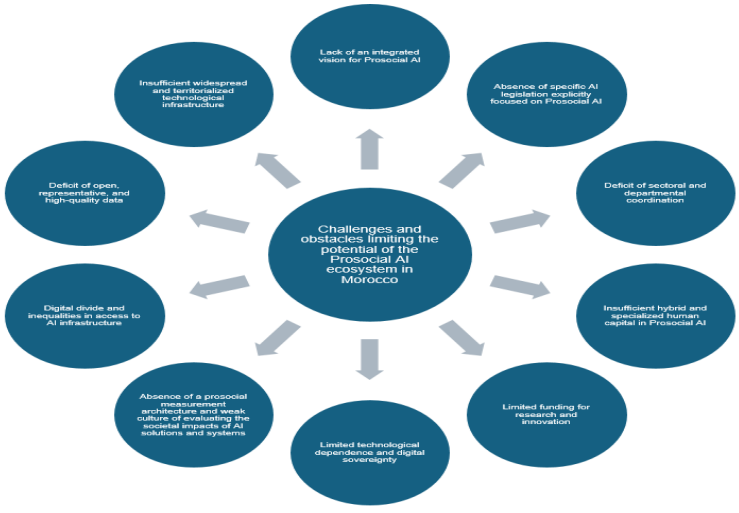


Figure 2: Main Challenges and obstacles limiting the potential of the Prosocial AI ecosystem in Morocco

The first challenge is the lack of an integrated vision for Prosocial AI. This is exacerbated by the absence of specific AI legislation governing the design, development, deployment, advancement, and use of AI. The lack of an operational framework law is hindering investment, innovation, and the potential of AI-based technology and creativity. The second challenge is the lack of sectoral coordination between different departments, which still operate in silos without real convergence in terms of governance and system management. AI. The third challenge is the lack of specialized human capital in Prosocial AI. There is a shortage of hybrid profiles, of Prosocial AI practitioners capable of combining technical expertise, algorithmic skills, and human skills with social impact. The fourth challenge is the absence of a prosocial measurement architecture. There is no composite index measuring the prosocial dimension of AI solutions and systems. It should be noted in this

context that the High Commission for Planning (HCP) has begun the process of developing a Prosocial AI index in a pilot phase in partnership with UNFPA. This innovative and strategic initiative fills this gap.

Another challenge highlighted by our research is the reliability of R&D and technological dependence. Indeed, as a country in the Global South, Morocco remains dependent on Foreign LLM models limit the country's cognitive and digital sovereignty. Another obstacle that must also be highlighted is the digital divide and inequalities in access to AI infrastructure, which deprives entire segments of the population of access to inclusive prosocial AI. Added to this is the deficit of open, representative, and high-quality data, which will consequently impact the performance and equity of prosocial AI solutions and systems with a human-centered focus on the needs and expectations of local populations.

5. The PHASE Framework: A Multilevel Governance Model Prosocial AI

5.1 Presentation of PHASE Prosocial AI Framework

Based on our diagnosis of the foundations and strengths of prosociality in the Moroccan context, and by analyzing the challenges and obstacles limiting the potential of Prosocial AI in Morocco, we have designed a holistic, multilevel, and multidimensional model of Prosocial AI governance, which we have named the PHASE Prosocial AI Framework. This conceptual model is based on the following five dimensions of prosociality, which synthesize our approach to the prosociality of an AI system, solution, or ecosystem: Prosociality & Public and Collective Value, Human Dignity, Equity & Well-Being, Algorithmic Accountability & Participatory Governance, Social Cohesion & Trust, and Ethical & Environmental Sustainability.

This is an integrative conceptual model that synthesizes existing approaches to AI governance by incorporating the various facets and multidimensional principles of prosociality within a unified, multilevel governance architecture. It thus enriches the conceptualisation of Prosocial AI by articulating governance, measurement, and institutionalisation within a single integrated framewok. It further contributes to structuring a conceptual definition of Prosocial AI, along with its core dimensions and the criteria guiding its conception, development, deployment and evaluation.

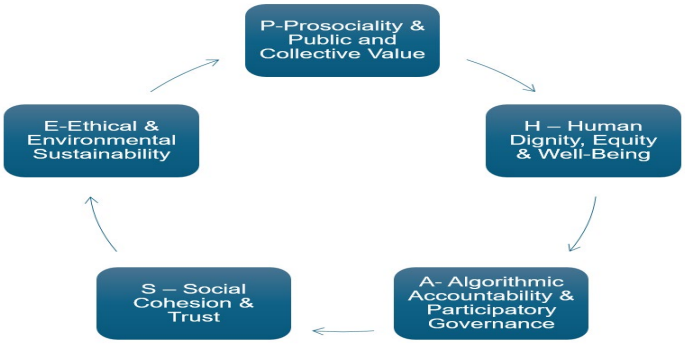


Figure 3: PHASE Prosocial AI Framework Overview

1. **Prosociality & Public and Collective Value**: This dimension focuses on the explicit prosocial purpose. It questions the real public and collective value that AI brings to the community and collective well-being.
2. **Human Dignity, Equity & Well-Being**: This second dimension focuses on the role that AI can play in the emancipation and development of fundamental human capacities. It examines its effective contribution to human dignity, equity and individual and collective well-being, as well as to the structural reduction of inequalities.
3. **Algorithmic Accountability & Participatory Governance:** This third dimension of our PHASE framework involves examining and reporting on the effects of AI. It calls for algorithmic accountability and participatory governance to guard against any missteps, biases, or exclusions.
4. **Social cohesion and trust:** this dimension examines the impact of AI on social capital, digital trust, and social cohesion. It involves assessing the extent to which AI can strengthen or weaken bonds of solidarity, reciprocity, and trust.
5. **Ethical and future-oriented sustainability**: this fifth dimension of algorithmic prosociality imposes criteria for ecological and ethical sustainability and intergenerational responsibility. It requires AI that respects the planet and future generations, in alignment with the SDGs.

5.2 Dimensions and Sub-dimensions of the PHASE Prosocial AI Framework

As shown in Figure 4 below, the components or dimensions constitute the building blocks and define the overall structure of our PHASE Prosocial AI Framework model. Each dimension has been structured into sub-dimensions, specifying the analytical elements.

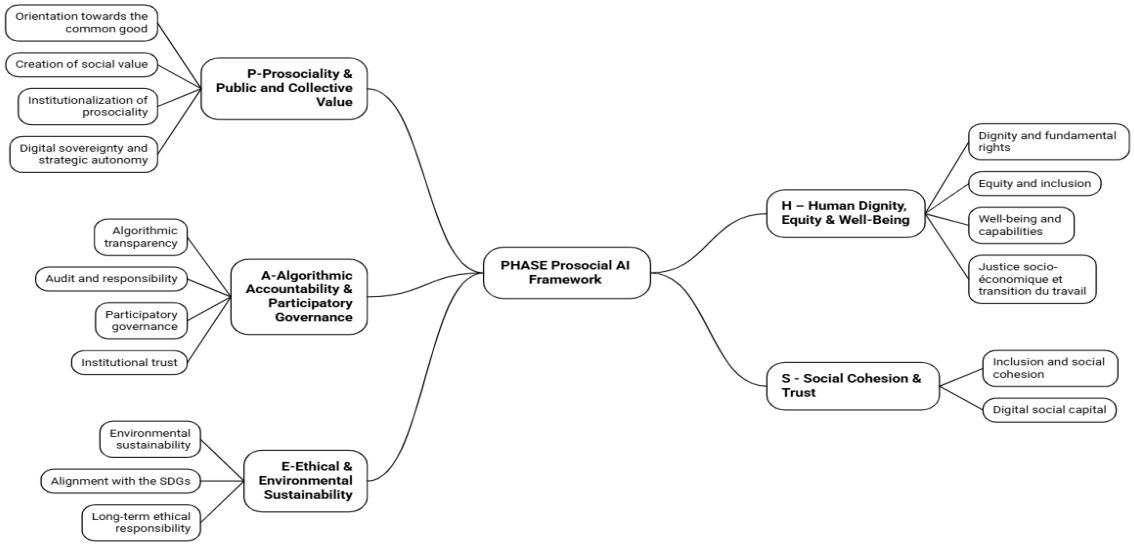


Figure 4: PHASE Prosocial AI Framework Dimensions and Sub-dimensions

6. Moroccan Prosocial AI Index (MPAII)

To operationalize the PHASE Framework, we proposed the Moroccan Prosocial AI Index. This is a measurement and evaluation tool that allows us to assess the prosocial dimensions of an AI system, solution, or ecosystem. Our Moroccan Prosocial AI Index is based on a different holistic and systemic vision, linked to public policy. It uses a multidimensional approach: meta level (Global level, planet), macro level (the state), meso level (organizations, regions, ministries, sectors), meso level (plateformes, systems, ecosystems), and nano level (human-computer interaction). This proposed index serves as a tool for comparative organizational and territorial analysis, informed decision-making, monitoring of public policies, and international evaluation of best practices. The adopted rating system was designed to be simple and pragmatic to facilitate the work of evaluators in the field: 0 (absence), 1 (initial), 2 (emerging), 3 (advanced). The overall score of our index corresponds to the aggregated average of the five dimensions of the PHASE framework.

7. Moroccan National Prosocial AI Charter (MNPAIC)

Our findings suggest that Prosocial AI necessitates a normative framework capable of establishing safeguards and ethically and sustainably guiding various institutional, regulatory, technological, and societal practices. This is why we have proposed the Moroccan National Charter for Prosocial AI (MNPAIC) as an institutionalization tool and an ethical and normative guidlines to guide the design, development, deployment, evaluation, and management of AI systems, in accordance with the principles of social justice, human dignity, social cohesion, collective well-being, transparency, citizen participation, and sustainability. This Charter, derived from our conceptual model constitutes a soft law mechanism and a tool for strengthening trust, legitimacy, harmonization of governance, and regional soft power. It guarantees ethical and sustainable coherence between technological and algorithmic progress and innovation, public and societal value, and inclusive, integrated, and sustainable human development. The guiding principles of this charter align with the five dimensions and sub-dimensions mentioned above in our conceptual model PHASE

The following figure schematically illustrates our conceptual approach as an integrated and unified multilevel governance architecture:

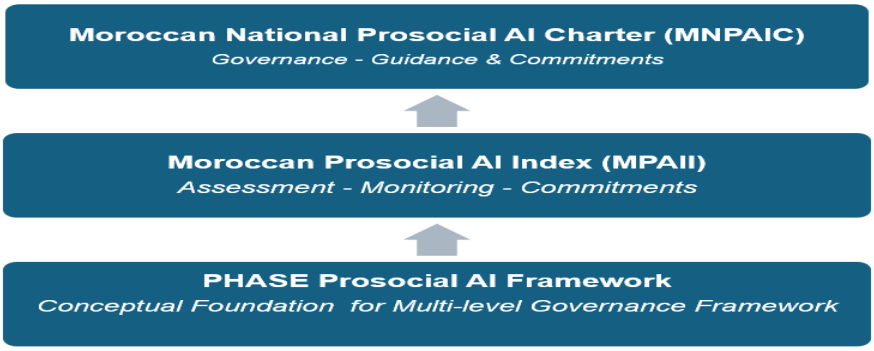


Figure 5: Synthetic conceptual approach: PHASE, Index, Charter

8. Prerequisites and Key Pillars of Morocco's Prosocial AI Leadership

8.1 Prerequisites for Morocco's Emergence as a Regional Leader in Prosocial AI

Our research identifies the prerequisites for Morocco to emerge as a leader in Prosocial AI that we have conceptualized as the main foundations of prosociality that ensure the robustness and sustainability of the Proscoial AI.

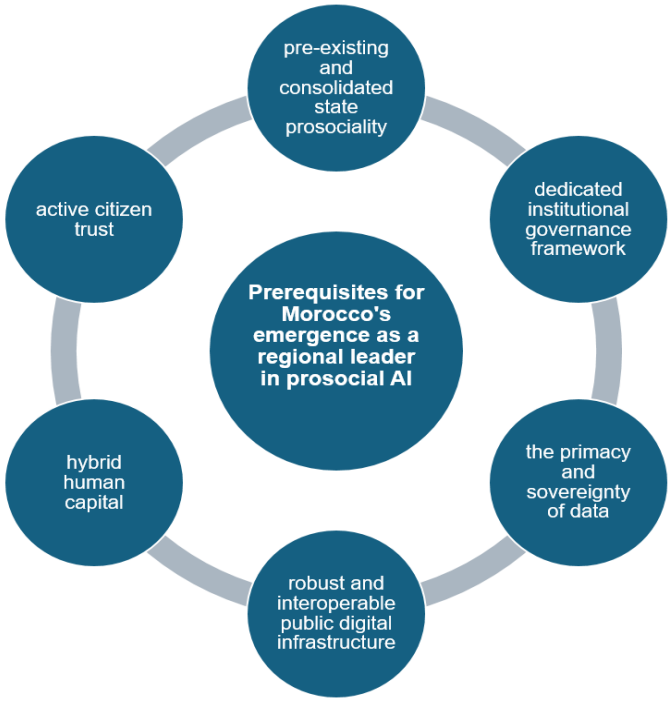


Figure 6: Prerequisites for Morocco's emergence as a regional leader in Prosocial AI

These conditions can be summarized as follows: a pre-existing and consolidated state prosocialism, a dedicated institutional governance framework with a set of measurable performance indicators capable of developing an AI ecosystem, data primacy and sovereignty, a robust and interoperable public digital infrastructure, and a hybrid human capital that masters both technical and social aspects, including ethics. Added to this is the active trust of citizens, supported by a clear strategic vision and structured, sustainable funding.

8.2 Key Pillars of Morocco's Prosocial AI Leadership

Our research highlights that Morocco possesses fundamental pre-existing potential in prosociality and considerable strengths in AI (Lafram & Bahji, 2024). This positioning predisposes it to become a pioneering country in this field. The pillars proposed within this framework consist of implementing the foundations of an effective, robust, and sustainable Moroccan ecosystem, ensuring African and continental leadership in prosocial AI.

The recomanded pillars are manly a national doctrine on prosocial AI, based on a strategic and civilizational vision, making AI an instrument for comprehensive, integrated, and sustainable human development, multilevel governance and institutionalization, digital sovereignty and strategic autonomy ensuring multidimensional dependence, human capital and collective intelligence. Another pillar is also proposed, focusing on inclusive and sustainable human development. This involves directly and intentionally linking AI to the real needs and expectations of populations, and to the imperatives of integrated, inclusive, and sustainable human development.

Like the other pillars, this pillar of trust and social cohesion also aligns with our multilevel and integrative conceptual model. It involves bringing together the essential ingredients to guarantee trust, acceptability, legitimacy, and citizen participation. Furthermore, we consider international leadership and normative digital diplomacy to be a fundamental pillar of regional influence and digital and normative soft power, aiming to make Morocco a regional hub, a normative benchmark, and an emerging laboratory for countries of the Global South. Thus, Morocco can leverage its progress in engaging with digital diplomacy by strengthening South-South cooperation in the field of pro-social AI and forging new regional partnerships.

Based on the aforementioned elements, we have synthesized the main components and levers for developing an integrated Prosocial AI ecosystem that Morocco, as a country in the Global South, can activate in order to transform its potential in Prosocial AI into true regional leadership.



Figure 7: Components and levers of development of an integrated and convergent Moroccan ecosystem of Prosocial AI

9. Conclusion

The findings of this conceptual research highlight the potential of Moroccan prosociality, which fosters the emergence of a prosocial AI ecosystem and supports its long-term development. The conceptual and strategic analysis conducted in this study identifies several constitutional, institutional, structural, strategic and cultural foundations and assets and various pioneering initiatives and projects launched by Morocco in the field of digital transition and AI (Morocco Digital 2030, AI Made in Morocco, D4SD, AI Movement, Jazari Institutes, etc.). However, several challenges limiting the potential of the prosocial AI ecosystem in Morocco have also been highlighted, arguing in favor of an innovative model adapted to the context of Morocco as a country of the Global South. Taking into account the results of this diagnostic of Moroccan algorithmic prosociality, we realized the need to develop an alternative multilevel conceptual model adapted to the Moroccan context, embodying what we call the “Moroccan Prosocial Way.” This model is part of our strategic thinking around the concept of the augmented Social State, which does not conceive of AI as a separate, compartmentalized policy but as an integrated national ecosystem for comprehensive, sustainable, and enhanced human development.

To respond to our central question: how can a country in the Global South, such as Morocco, achieve leadership and transform its potential in Prosocial AI? this research proposes the PHASE Prosocial AI Framework, which is based on the five dimensions of prosociality. These dimensions synthesize our approach to the prosociality of an AI system, solution, or ecosystem: Prosociality & Public and Collective Value, Human Dignity, Equity & Well-Being, Algorithmic Accountability & Participatory Governance, Social Cohesion & Trust, and Ethical & Environmental Sustainability.

To operationalize this integrative, multidimensional model, we proposed the Moroccan Prosocial AI Index, a pragmatic measurement tool based on the five dimensions of prosociality that comprise our PHASE model. Furthermore, we also proposed a normative framework: the Moroccan National Charter for Prosocial AI, to institutionalize our PHASE model. This charter defines the guiding principles and objectives, particularly those of prosociality, public value, social cohesion, equity, ethics, responsibility, and sustainability.

Thus, this article provides three major theoretical and conceptual contributions (PHASE Prosocial AI Framework, Index, Charter) that explore an emerging scientific field by proposing an exportable and replicable conceptual model in other contexts of the Global South. Our research also provides practical contributions for decision-makers, practitioners, and international organizations interested in the prosocial dimensions of AI solutions, systems, and ecosystems, and who aim to experiment with or launch pilot projects for the measurement, auditing, and development of Prosocial AI.

As with any qualitative and exploratory study, this research has certain limitations, mainly related to the novelty of these measurement tools, which require institutional adoption and commitment from all stakeholders. It opens up promising new perspectives for research in emerging fields such as the development and deployment of measurement, audit and evaluation instruments for prosocial AI and experimental implementation of these tools in various priority sectors and national and regional contexts, as well as comparative and longitudinal studies on prosocial AI in Africa and the MENA region.

Ethics Declaration: No ethical approval was required for this paper.

AI Declaration: No AI tools were used in the preparation and writing of this paper.

References

Cascio, J. (2020) Facing the Age of Chaos. Institute for the Future.

European Union (2024) Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (Artificial Intelligence Act), Official Journal of the European Unio. https://eur-lex.europa.eu/eli/reg/2024/1689/oj

Floridi, L., Cowls, J., Beltrametti, M., Chatila, R., Chazerand, P., Dignum,V., Luetge, C. Madelin, R., Pagallo, U., Rossi, F., Schafer, B., Valcke,P. and Vayena, E. (2018) "AI4People-An Ethical Framework for a Good AI Society: Opportunities, Risks, Principles, and Recommendations". Minds & Machines? Vol 28, N° 4, pp. 689–707 https://doi.org/10.1007/s11023-018-9482-5

Gupta, P., Zhong, Q.,Yakura, H., Eisenmann, T., & Rahwan, I. (2026) "The Role of Social Learning and Collective Norm Formation in Fostering Cooperation in LLM Multi-Agent Systems". In Proceedings of the 25th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2026), Paphos, Cyprus. https://doi.org/10.48550/arXiv.2510.14401

High-Level Expert Group on Artificial Intelligence (2019) Ethics guidelines for trustworthy AI. European Commission.https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai

Hooghe, L., & Marks, G. (2001) "Types of multi-level governance". European Integration online Papers (EIoP), Vol. 5, No. 11. https://eiop.or.at/eiop/pdf/2001-011.pdf

International Telecommunication Union. (2023) AI for good global summit initiative. ITU. https://aiforgood.itu.int/

Jaakkola, E. (2020) "Designing conceptual articles: four approaches". AMS Review, Vol. 10, No. 1-2, pp. 18-26 https://doi.org/10.1007/s13162-020-00161-0

Jobin, A., Ienca, M. & Vayena, E. (2019) "The global landscape of AI ethics guidelines". Nature Machine Intelligence Vol.1, No 9., pp.389–399. https://doi.org/10.1038/s42256-019-0088-2

Lafram, A., & Bahji, S. E. (2024) "Artificial intelligence in Morocco: Towards holistic, responsible and ethical national AI strategy for Moroccan competitiveness and strategic intelligence". In Proceedings of the 20th European Conference on Management Leadership and Governance (ECMLG 2024) 14 -15 November 2024, Universidade Lusófona Lisbon, Portugal. pp. 255–263.

Moore, G.E. (1995) Principia Ethica. Cambridge University Press.https://doi.org/10.1017/CBO9780511818917

Nussbaum, M. C. (2011) Creating capabilities: The human development approach. Harvard University Press. https://www.hup.harvard.edu/books/9780674050549

OECD. (2024) OECD AI principles overview. OECD AI Policy Observatory. https://oecd.ai/en/ai-principles

OECD (2019) Artificial Intelligence in Society, OECD Publishing, Paris, https://doi.org/10.1787/eedfee77-en.

European Parliament & Council of the European Union. (2024). Artificial Intelligence Act (Regulation (EU) 2024/1689). https://eur-lex.europa.eu/eli/reg/2024/1689/oj

OECD. (2019) OECD principles on artificial intelligence. OECD Publishing.https://doi.org/10.1787/eedfee77-en https://oecd.ai/en/ai-principles

National Institute of Standards and Technology. (2023) Artificial intelligence risk management framework (AI RMF 1.0) (NIST AI 100-1). https://doi.org/10.6028/NIST.AI.100-1 https://www.nist.gov/itl/ai-risk-management-framework

Santos, F. P. (2024) Prosocial dynamics in multiagent systems. AI Magazine, 45, 131-138. https://doi.org/10.1002/aaai.12143

Sen, A. (1999) Development as freedom. Oxford University Press .https://global.oup.com/academic/product/development-as-freedom-9780198297581

Shi, H., Yin, B.(M.), Teng, L., & Ma, B. (2025) Empathetic AI Encounters : Pathways to Prosocial Behavior. Journal of Service Research. Advance online publication.

Shneiderman, B. (2022) Human-Centered AI. Oxford University Press.

Stanford Institute for Human-Centered Artificial Intelligence. (2026). AI Index Report 2026. Stanford University. https://hai.stanford.edu/assets/files/ai_index_report_2026.pdf

United Nations. (2024) Governing AI for humanity: Final report of the High-Level Advisory Body on Artificial Intelligence. United Nations.https://www.un.org/en/ai-advisory-body

UNESCO (2021) Recommendation on the ethics of artificial intelligence. UNESCO.https://www.unesco.org/en/artificial-intelligence/recommendation-ethics

Walther, C. C. (2026) "The Fourth Path: Middle-Income Countries and Prosocial AI". Centre for International Governance Innovation (CIGI), Policy Brief No. 230.

Walther, C.C. (2024) "ProSocial artificial intelligence as a catalyst for holistic health: a multidimensional approach". BMC Global Public Health 2, Article 76 https://doi.org/10.1186/s44263-024-00111-z

Willis, R., Zhao, J., Du, Y., & Leibo, J.Z. (2026) "Evaluating colelctive behaviour of hundreds of LLM agents". ArXiv. https://arxiv.org/abs/2602.16662Wang, Z., Song, R.,Shen, C., Yin, S ; Song, Z. Battu, B., Lei Shi, L., Jia, D.

Zhou, Y., Wang, H., Ai, Q., Wu, Z., & Liu, Y. (2026) "Investigating Prosocial Behavior Theory in LLM Agents Under Policy-Induced Inequities". Proceedings of the AAAI Conference on Artificial Intelligence, 40(3), 2254–2262. https://doi.org/10.1609/aaai.v40i3.37209

Quality Management for Pupil Health in Schools

Stefan Lagrosen[1] and Yvonne Lagrosen[2]
[1]Department of Management, School of Business and Economics, Linnaeus University, Kalmar, Sweden
[2]Department of Health Sciences, Innovation and Design, Faculty of Engineering and Health Sciences, Mälardalen University, Eskilstuna, Sweden

stefan.lagrosen@lnu.se
yvonne.lagrosen@mdu.se

Abstract: The purpose of this paper is to examine the association between quality management values and pupil health in schools. A survey was conducted among all pupils in a Swedish primary school. Associations between the quality management values and the pupils' health were found. Cluster analysis identified groupings among the pupils. The findings extend the findings of previous research linking quality management to employee health. The main limitations are that the study was carried out in a single, relatively small school and that translating quality values into a pupil perspective may be arbitrary. However, the findings should be useful to school leaders, helping them improve the quality of their activities and the health of pupils. Children's health is vital to the wider societal welfare. This study is the first piece of research to investigate the relationship between quality management and pupil health in schools.

Keywords: Quality management, Schools, Pupil health

1. Introduction and Purpose

Pupil health is crucial to the well-functioning of schools. Lack of health impairs the learning process and reduces the quality of life of schoolchildren. The emotional and behavioural health of pupils varies across schools and is impacted by the schools at varying levels (Lewer et al. 2024). Socioeconomic differences may result in extra challenging health situations for some children (Elgar et al. 2015). Mental health problems are common, and training for staff to handle them is vital (Soneson et al. 2024). Even telepresence robots are used to help pupils with physical and emotional health needs access their education (Lewer et al. 2024). Pupil health problems may be due to various reasons, for instance, insufficient sleep (Wheaton et al. 2016). The indoor environmental quality, regarding issues such as ventilation, cleanliness, temperature and mould, is also vital, and it has been shown to be related to the academic performance of students (Toyinbo 2023). Schools can be a resource for health literature in two ways: as a learning resource in health literacy and as a health-literate organisation in itself (Kirchhoff et al. 2022).

In several industries, quality management has been shown to be related to workplace health. This association has also been indicated for schools. However, in these studies, the health of schoolteachers and other staff has been examined. So far, no studies have examined the connection between quality management and pupil health in schools.

Consequently, the purpose of this paper is to examine the association between quality management values and pupil health in schools. The remainder of the paper is structured as follows. First, the theoretical bases for the paper, quality management and health promotion, are briefly reviewed. Next, the study's methodology, findings and analysis are presented. The paper concludes with a discussion and the conclusions of the study.

2. Quality Management

Quality management (QM) can be viewed as a system comprising techniques, tools and values (Hellsten and Klefsjö 2000). The system is related to ethics and culture (Alsetoohy et al. 2026). Research has found that quality management is strongly associated with performance and also promotes culture and innovation (Xu et al. 2026) as well as efficiency and customer satisfaction (Alkhatib et al. 2026). The underlying values of quality management are often seen as the most critical aspect and have been found to be related to the better functioning of the quality management system (Lagrosen and Lagrosen 2005). A literature review has shown the following six values to be the most common: customer orientation, committed leadership, everyone's participation, process orientation, continuous improvement and fact-based decisions (Lagrosen 2006):

- Customer orientation. All processes should focus on satisfying both external and internal customers.
- Participation of everybody. All employees across the organisation should be involved in the quest for higher quality.

- Leadership commitment. Quality should be the main focus for all leaders in the organisation, from top management to all levels of management.
- Process orientation. The organisation should be structured around its main processes, which should be mapped, with a process owner for each.
- Continuous improvement. Organisations should constantly strive to improve all parts of their operations.
- Fact-based decisions. Decisions should be made based on ample and reliable data.

Research has found associations between these values and employees' health in various organisations (Lagrosen et al. 2007, Lagrosen et al. 2010, Fadhel and Alqurs 2025). A connection to stress has also been identified (Lagrosen and Lagrosen 2020).

3. Workplace Health Promotion

Within health promotion, 'Sense of Coherence' (SOC) is one of the most vital concepts.

(Antonovsky 1987). The overall meaning of the concept is an individual's ability to handle stressful situations. Since stress is prevalent in many workplaces today, SOC has been shown to be related to workplace health. It expresses itself in the dimensions:

- Comprehensibility - whether one experiences the events and impressions that occur as reasonable or as random and inexplicable.
- Manageability - if you consider yourself generally unsuccessful or if you feel that even if you face difficulties, you can deal with them and meet the challenges that life brings.
- Meaningfulness - that you feel that life has a meaning, that there is something that is worth living and fighting for.

Research has shown that SOC is related to physical health, and there are indications that it is related to a lower incidence of serious diseases such as cardiovascular disease, diabetes, cancer, and mental illness (Lindström and Eriksson 2006). There is also a connection to self-efficacy, the confidence people have in their ability to influence their life situation successfully (Bandura 2004). Furthermore, extensive research shows that SOC is essential for managing stress in working life (Lindström and Eriksson 2006) as well as for students (Ballester-Ferrando et al. 2025), and that strong SOC reduces the risk of burnout in the workplace (Kalimo et al. 2003) while increasing well-being at work (Feldt 2007).

The demand-control model is a framework for describing the stress-related effects of work on employees. It is a function of the demands the work exposes people to and their ability to control them. High control can mitigate the effects of high demands (Karasek 1979, Karasek and Theorell 1990). It defines work strain as the combined effect of these two different job characteristics:

- *Demands* - how high the requirements for performance are, as well as the difficulty and complexity of the work. Both physical and mental aspects are included.
- *Control* - what degree of control the employee has over his/her work situation regarding possibilities for influencing how and where the tasks are performed, and the possibility of managing the demands in the previous point.

Taken together, the dimensions give rise to four distinct work situations. Each type of job has different effects on health. Research shows that the combination of high demands and low control is the riskiest situation. For instance, high emotional demands and low control among teachers have been found to be associated with an increased risk of pupils' aggressive behaviour (Andersen et al. 2021). In contrast, the upper high control and low demands usually entail the least risk of health problems.

Flow (Csikszentmihalyi 2008) is a concept which has been developed in the context of positive psychology. It is described as a state in which people fully engage in an activity in a way that is both maximally effective and highly enjoyable. One is completely absorbed in what one does to the extent that time and space are forgotten. The state is also characterised by energy, creativity and efficiency.

Flow gives a feeling that order is being created in consciousness (Csíkszentmihályi 1990). There is a clear connection between flow and organisational learning, especially the discipline of personal mastery in the learning organisation (Senge 2006). Flow has also been shown to be created by the quality management Kaizen technique (Yokozawa et al. 2025). This is about being part of a larger creative whole and gaining an

increased ability to achieve the things that are really important. Some characteristics of the state of flow are (Csíkszentmihályi 1990):

- That you get so caught up in what you are doing that you forget time and space.
- Absorption in the activities combined with a clear focus and control over the situation.
- Balance between competence and challenge.

Research has shown a connection between flow and success in athletes (Jackson 2001) and musicians (Travis et al. 2011, O'Neill 1999). Furthermore, flow has been shown to be associated with lower blood pressure and improved cardiac and respiratory function (de Manzano et al. 2010).

Another study investigated the relationship between flow and health among school employees in Västra Götaland County, Sweden, with 229 participants. The results indicated a significant connection between experiences of flow and the experience of health (Lagrosen and Lagrosen 2014).

4. Methodology

The study was carried out in a primary school in western Sweden. In order to respond to the research questions, a questionnaire was developed. The basis was a verified measurement instrument (Lagrosen et al. 2012) that has been designed for measuring health, quality and learning, and it was adapted to the present context. The questionnaire included eleven indices, each consisting of three items. Each item measured the pupils' agreement with a statement on a five-level Likert-type scale with the endpoints "do not agree at all" and "agree completely". To preserve anonymity, the only demographic background data that was collected was age and gender.

The first six indices concerned the six quality management values presented above. They have been used in several previous research studies. However, they were now adapted to fit the pupils' situation. For instance, the questions regarding leadership commitment did not concern school management but rather the schoolteachers, since teachers take on a leadership role vis-à-vis the pupils. Next, two indices intended to measure the two dimensions in the Karasek model presented above, demand and control, were included. They have also been tested in previous research.

Moreover, an index, also used in previous research, intended to measure the level of flow experience was included. Finally, two indices aimed at measuring health were included. One of them is an assessment of the self-reported health of the pupils. Self-reported health has been found to correspond with physical measures of health (Su et al. 2022). This index has been used in several previous research studies. In addition, an index intended to measure the level of the dimensions of sense of coherence (SOC) experienced by the students was integrated. There are various measurement instruments that have been developed to measure the presence of SOC. Nevertheless, in order not to make the questionnaire too long and since this is not the main focus of the study, a more straightforward index with only one item for each dimension was chosen.

The school enrols pupils from grades one (usually seven years old) to nine (usually fifteen years old) in the Swedish school system. As the smaller pupils were judged to be too young to be able to understand and reflect on the items thoroughly, the questionnaire was directed to all pupils from fourth grade (usually ten years old) to ninth grade. There were 54 pupils in total in those grades in the school. The pupils filled out the questionnaires at their school using computers provided by the school in separate places. In this way, it could be ensured that a 100% response rate was achieved while preserving the pupils' anonymity.

5. Results and Analysis

The descriptive data and reliability, assessed using Cronbach's alpha, are presented in Table 1.

Table 1: The descriptive data

Index	Mean	Standard Deviation	Cronbach's Alpha
Customer orientation	4.21	.69	.60
Leadership commitment	4.00	.83	.82
Participation of everybody	3.95	.84	.79
Process orientation	4.01	.89	.79
Continuous improvement	3.96	.85	.74

Index	Mean	Standard Deviation	Cronbach's Alpha
Fact-based decisions	3.92	.82	.74
Demand	3.11	.97	.52
Control	3.64	.81	.69
Flow	3.12	1.01	.71
Self-reported health	3.52	1.01	.70
Sense of coherence	3.61	1.03	.79

In a general observation, it could be noted that the levels of the quality dimensions are rather high, which may point to this being a well-functioning school. The health of the pupils also seems to be relatively good.

A Cronbach's alpha value of .6 or higher is usually considered sufficient (Hair et al., 1998). The demand index is below this level. This means that the reliability of this index, in terms of consistency, may be inadequate. Further, analyses including this index should, therefore, be interpreted with caution. The results involving this specific index could be biased by the lack of consistency that was shoen. The other indices scored .6 or higher, indicating that they have adequate reliability regarding consistency.

Table 2: The correlation between self-reported health and the other indices

Index	Correlation	p-value
Customer orientation	0.440**	0.000
Participation of everybody	0.403**	0.000
Leadership commitment	0.420**	0.001
Process orientation	0.505**	0.000
Continuous improvement	0.506**	0.000
Fact-based decisions	0.604**	0.000
Demands	-0.285	0.072
Control	0.486**	0.000
Flow	0.604**	0.000
Sense of coherence	0.797**	0.000

In accordance with the purpose of the paper, the correlation between self-reported health and the other indices was tested using Pearson's correlation coefficient test in the next step. The result is shown in Table 2.

Thus, all the quality indices were significantly correlated with the health index. Ranging from .403 to .604, this must be considered a rather high level of correlation. Demands tend to be negatively correlated with health, but this relationship is not significant. On the other hand, control and flow are both significantly correlated with self-reported health. Finally, Sense of coherence is exceptionally highly correlated with health, which is not surprising since both are measures of experienced health.

For that reason, it is also logical that a similar picture emerges when the Sense of coherence is correlated with the other indices, which have basically the same correlations (see Table 3).

In the next step, the association between health and quality management was further examined by utilising regression analysis. Among the quality value indices, the multicollinearity was high. This is not surprising since they together form a comprehensive management system. For this reason, the decision was made to use a summated variable that included all the values and to examine their association with the health indices using simple regression analysis. The summated variable was created by calculating the arithmetic mean of numbers of the six quality management values and using this as a composite variable.

Table 3: The correlation between sense of coherence and the other indices

Index	Correlation	p-value
Customer orientation	0.538**	0.000
Participation of everybody	0.521**	0.000
Leadership commitment	0.499**	0.001

Index	Correlation	p-value
Process orientation	0.697**	0.000
Continuous improvement	0.622**	0.000
Fact-based decisions	0.623**	0.000
Demands	-0.453	0.072
Control	0.534**	0.000
Flow	0.715**	0.000
Health	0.797**	0.000

Consequently, in the first test, simple linear regression was utilised to assess whether the level of experience with quality management values significantly predicted self-reported health. The fitted regression model was:

Health = .053 + .588*(quality dimensions)

The overall regression was statistically significant (R^2 = .334, F (1, 53) = 27.541, p < .000). It was found that the experienced levels of the quality dimensions significantly predicted self-reported health (β = .588, p <. 000).

In the next step, similarly, simple linear regression was used to test whether the level of experience with quality management values significantly predicted Sense of coherence. The fitted regression model was:

Sense of coherence = .-699 + .718*(quality dimensions)

The overall regression was statistically significant (R^2 = .506, F (1, 53) = 28.765, p < .000). Thus, it was found that the experienced levels of the quality dimensions significantly predicted Sense of coherence (β = .718, p <. 000).

Potential groupings in the data were examined with cluster analysis. The particular aim of this test was to connect the results to the demand-control model with its two dimensions and four types of work situations. Therefore, a k-means solution of four clusters was chosen.

Again, quality dimensions were used as a summated variable to avoid overly complex analysis. In addition, the indices *demands*, *control*, and *health* were included. The results are shown in Table 4.

Table 4: The cluster analysis

Cluster	1	2	3	4
Quality dim.	3.71	4.49	2.50	4.46
Health	2.79	4.31	2.75	4.42
Demands	3.17	1.97	4.75	3.54
Control	3.41	4.19	1.83	4.13
Number of cases in cluster	25	12	4	13

In accordance with Hair et al. (Hair et al. 1998), the clusters were labelled and may be described as follows:

1. *The middle group* has medium values on most indices, and their health is not very good.
2. *The gliders* have the most comfortable situation. They experience that the demands are relatively low while the control is high, and they have high values on the quality dimensions index. Their health is good.
3. *The strugglers*, in contrast, have the most challenging situation. They feel that the demands are very high while their control is low. They have low values on the quality dimensions and the worst value on the health index.
4. *The achievers*, finally, are relatively similar to the gliders, but the difference is that, in their opinion, the demands are rather high. Nevertheless, they seem to be able to handle these demands with a high level of control and high values on the quality index. In consequence, they actually have the highest value on the health index.

In the next step, the clusters were depicted in a graph of the demand-control model. The result is shown in Figure 1.

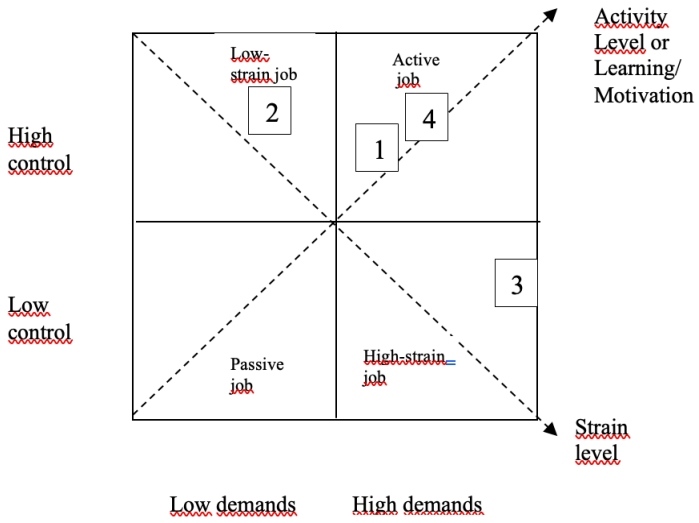


Figure 1: The clusters in the demand-control model. (Developed after Karasek, 1979)

In the figure, the achievers and, somewhat less clearly, the middle group are in the *active job* section of the diagram. This may be a good place for school pupils to be, since this is where the learning is highest. The achievers also show good values in the health and quality dimensions.

The strugglers are in *high-strain* job area where the demands are high, and the control is low. This is generally a problematic situation that often leads to health problems. Accordingly, their health is not good, and they do not experience much of the quality values.

The gliders are in the low-strain job quadrant. This may seem ideal; indeed, their health is good, and they score highly on the quality index. Nonetheless, in this part of the diagram, the learning is not as high as it could be, and learning is the main purpose of a school. Thus, these pupils may benefit from meeting higher demands in order to unfold their potential.

6. Discussion and Conclusion

Our findings suggest that there is an association between quality management in schools and the pupils' health. The values of quality management were all found to be correlated with the health index as well as the Sense of Coherence index. Moreover, the regression analysis indicated that the experienced level of the composite quality management levels significantly predicted pupil health as well as pupil Sense of Coherence. These results extend the findings of previous research that has shown that quality management values are associated with workplace health among employees across various organisations. Consistent with previous studies, quality management values, individually and as a composite way of managing, were found to be related to better health among the pupils.

In addition, the demand-control model was tested for associations with the health indices. Control was found to be correlated with better health. For Demand, a non-significant negative correlation was indicated. This is consistent with the findings of Lagrosen and Lagrosen (2020), who found that Control is positively related to teachers' health, whereas Demand was not significantly related. The current study thus extends these results and points to a similar effect of Demands and Control for teachers and pupils.

Furthermore, Flow was found to be associated with better health among the pupils. This is also in line with the findings of Lagrosen and Lagrosen (2014) regarding teachers. Consequently, there are indications that flow has a comparable influence on health among both pupils and teachers in schools.

Groupings among the pupils were analysed using cluster analysis, and four groups were identified. This shows that various pupils experience their school situation very differently and that these differences affect their health. Some pupils struggle with demands that they perceive as too high while having low control. Other pupils seem to have too low demands and might benefit from higher challenges, even health-wise.

The results of the study should be useful for managers in the school sector. Establishing a quality culture in which the values of quality management are permeating the organisation may be a prerequisite for health

among pupils as well as teachers. It will likely also increase the effectiveness of the teaching and lead to better learning outcomes. Consequently, school managers should take steps to integrate quality management practices in their organisations. The finding that Control and Demand affect various pupils differently implies that school managers need to consider each individual pupil's situation and tailor the educational activities accordingly. Some pupils need more support and greater control, while others may benefit from being more challenged by the school activities.

There are several limitations to the study. It was carried out in a relatively small school in Sweden. The possibility of generalising the results to other schools in other countries is uncertain. Statistical generalisation is obviously not feasible from a single case study, but analytical generalisation may be possible (Yin 1994). In addition, translating the quality management values from an employee perspective to a pupil perspective necessarily entails a certain amount of arbitrariness. Translating them differently may have yielded different results.

This is a pilot study in a field that has not attracted previous research. Further research should include more large-scale studies across various countries to examine whether the results reflect broader phenomena. Additionally, in-depth qualitative studies would be valuable for investigating the actual mechanics of the associations that have been indicated. Finally, longitudinal research would also be useful for increasing understanding of the development of the associations over time.

In conclusion, the study has indicated associations between quality management values and pupil health in schools. Associations with the demand-control model and with flow were also found. Consequently, efforts to improve the quality of educational institutions may also enhance the health of pupils.

Acknowledgement

The authors wish to acknowledge the Swedish National Agency for Education for its valuable financial support.

Ethics Declaration: Ethical clearance was not required for the research

AI Declaration: AI tools have not been used in the creation of the paper

References

Alkhatib, F., Alsadi, J., Antony, J., Sony, M., Bhat, S., Lameijer, B. and Maalouf, M. (2026), "Quality management and operational performance: a systematic literatur review", *International Journal of Productivity and Performance Management,* Vol. 75 No. 11, pp. 54-81.

Alsetoohy, O., Albadry, O., Mathew, V., Abou Kamar, M., Saad Al-Monawer, N., Alzuman, A. and Sheikhelsouk, S. (2026), "National culture, ethical climate and relational identification: a triadic framework for quality management and performance excellence in hotels", *Journal of Hospitality and Tourism Insights,* Vol. 9 No. 2, pp. 924-47.

Andersen, L.P., Aust, B. and Nøhr Winding, T. (2021), "The demand-control model and pupils' acressive behaviour towards teachers: A follow-up study", *International Journal of Environmental Research and Public Health,* Vol. 18 No. 19, pp. 10513.

Antonovsky, A. (1987), *Unraveling the mystery of health : how people manage stress and stay well,* Jossey-Bass, San Fransisco.

Ballester-Ferrando, Cáceres-Malagelada, E., Rascón-Hernán, C., Botigué, T., Lavedán, A., Masot, O., Burjalés, D., González-Osorio, L., Osorio-Spuler, X., Serrat-Graboleda, E. and Fuentes-Pumarola, C. (2025), "Sense of Coherence and perceived academic stress among nursing students: A multicenter cross-sectional study", *Nursing Reports,* Vol. 15 No. 8, pp. 288.

Bandura, A. (2004), "Health promotion by social cognitive means", *Health Education and Behavior,* Vol. 31 No. 2, pp. 143-64.

Csikszentmihalyi, M. (2008), *Flow: The Psychology of Optimal Experience,* Harper Perennial, New York.

Csíkszentmihályi, M. (1990), *Flow: The Psychology of Optimal Experience,* Harper & Row, New York.

de Manzano, Ö., Theorell, T., Harmat, L. and Ullén, F. (2010), "The psychophysiology of flow during piano playing", *Emotion,* Vol. 10 No. 3, pp. 301-11.

Elgar, F.J., Pförtner, T.-K., Moor, I., De Clercq, B., Stevens, G.W.J.M. and Currie, C. (2015), "Socioeconomic inequalities in adolescent health 2002-2010: a time-series analysis of 34 countries participating in the Health Behaviour in School-aged Children study", *The Lancet,* Vol. 385 No. 9982, pp. 2088-95.

Fadhel, R. and Alqurs, A. (2025), "Enhancing occupational health and safety through strategic leadership: The mediating role of Total Quality Management in Hodeida Hospitals, Yemen", *Risk Management and Healthcare Policy,* Vol. 18, pp. 823-42.

Feldt, T. (2007), "The role of sense of coherence in well-being at work: analysis of main and moderator effects", *Work and Stress,* Vol. 11 No. 2, pp. 134-47.

Hair, J.F., Anderson, R.E., Tatham, R.L. and Black, C.B. (1998), *Multivariate Data Analysis,* 5 ed.*,* Prentice Hall Inc., Upper Saddle River.

Hellsten, U. and Klefsjö, B. (2000), "TQM as a management system consisting of values, techniques and tools", *The TQM-Magazine,* Vol. 12 No. 4, pp. 238-44.

Jackson, S.A. (2001), "Relationships between flow, self-concept, psychological skills and performance", *Journal of Applied Sport Psychology,* Vol. 13 No. 2, pp. 129-53.

Kalimo, R., Pahkin, K., Mutanen, P. and Topipinen-Tanner, S. (2003), "Staying well or burning out at work: Work characteristics and personal resources as long-term predictors", *Work and Stress,* Vol. 17 No. 2, pp. 109-22.

Karasek, R. (1979), "Job demands, job decision latitude and mental strain: Implications for job redesign", *Administrative Science Quarterly,* Vol. 24, pp. 285-307.

Karasek, R. and Theorell, T. (1990), *Healthy Work, Stress, Productivity, and the Reconstruction of Working Life,* Basic Books, New York.

Kirchhoff, S., Dadaczynski, K., Pelikan, J.M., Zelinka-Roitner, I., Dietscher, C., Bittlingmayer, U.H. and Orkan, O. (2022), "Organizational Health Literacy in Schools: Concept Development for Health-Literate Schools", *International Journal of Environmental Research and Public Health,* Vol. 19 No. 14, pp. 8795.

Lagrosen, S. and Lagrosen, Y. (2014), "Work integrated learning for employee health in schools", *International Journal of Quality and Service Sciences,* Vol. 6 No. 4, pp. 387-98.

Lagrosen, S. and Lagrosen, Y. (2020), "Workplace stress and health - the connection to quality management", *Total Quality Management & Business Excellence,* Vol. 33 No. 1-2, pp. 113-26.

Lagrosen, Y. (2006), "Values and Practices of Quality Management - Health implications and organisational differences", in *Division of Quality Sciences*, Chalmers University of Technology, Gothenburg.

Lagrosen, Y., Backstrom, I. and Lagrosen, S. (2010), "The relationship between quality management and health - exploring the underlying dimensions", *International Journal of Productivity and Quality Management,* Vol. 5 No. 2, pp. 109-23.

Lagrosen, Y., Bäckström, I. and Lagrosen, S. (2007), "Quality management and health - a double connection", *International Journal of Quality and Reliability Management,* Vol. 24 No. 1, pp. 49-61.

Lagrosen, Y., Bäckström, I. and Wiklund, H. (2012), "Approach to measuring health-related quality management", *The TQM Journal,* Vol. 24 No. 1, pp. 59-71.

Lagrosen, Y. and Lagrosen, S. (2005), "The effects of quality management - a survey of Swedish quality professionals", *International Journal of Operations and Production Management,* Vol. 25 No. 10, pp. 940-52.

Lewer, D., Gilbody, S., Lewis, G., Pryce, J., Santorelli, G., Wadman, R., Watmuff, A. and Wright, J. (2024), "How do schools influence the emotional and behavioural health of their pupils? A multi-level analysis of 135 schools in the Born in Bradford inner city multi-ethnic birth cohort", *Social Psychiatry and Psychiatric Epidemiology,* Vol. 59, pp. 1335-46.

Lindström, B. and Eriksson, M. (2006), "Contextualizing salutogenesis and Antonovsky in public health development", *Health Promotion International,* Vol. 21 No. 3, pp. 238-44.

O'Neill, S. (1999), "Flow theory and the development of musical performance skills", *Bulletin of the Council for Research in Music Education,* Vol. 141, pp. 129-34.

Senge, P.M. (2006), *The Fifth Discipline: The Art and Practice of the Learning Organization,* 2 ed.*,* Currency Doubleday, New York.

Soneson, E., Howarth, E., Weir, A., Jones, P.B. and Fazel, M. (2024), "Empowering School Staff to Support Pupil Mental Health Through a Brief, Interactive Web-Based Training Program: Mixed Methods Study", *Journal of Medical Internet Research,* Vol. 26 No. e46764.

Su, Y.-J., Hsu, C.-T., Liang, C., Lee, P.-F., Lin, C.-F., Chen, H.-T. and Ho, C.-C. (2022), "Association between health-related physical fitness and self-reported health status in older Taiwanese adults", *BMC Geriatrics,* Vol. 22 No. 1, pp. 235.

Toyinbo, O. (2023), "Indoor environmental quality, pupils' health, and academic performance - a literature review", *Buildings,* Vol. 13 No. 9, pp. 2172.

Travis, F., Harung, H. and Lagrosen, Y. (2011), "Moral development, executive functioning , peak experiences and brain patterns in professional and amateur classical musicians: Interpreted in light of a Unified Theory of Performance", *Consciousness and cognition,* Vol. 20 No. 4, pp. 1256-64.

Wheaton, A.G., Chapman, D.P. and Croft, J.B. (2016), "School Start Times, Sleep, Behavioral, Health, and Academic Outcomes: A Review of the Literature", *Journal of School Health,* Vol. 86 No. 5, pp. 363-81.

Xu, C., Ruanggoon, J. and Thavorn, J. (2026), "Total quality management and organizational performance in the manufacturing industry: integrating contingency theory and the resource-based view", *Cogent Business & Management,* Vol. 13 No. 1, pp. 2635755.

Yin, R.K. (1994), *Case Study Research, Design and Methods,* 2 ed.*,* Sage Publications, Newbury Park.

Yokozawa, K., Nguyen, H.A. and Phung, H.T.X. (2025), "From trait anxiety to flow: a psychological pathway through kaizen-enabling behaviors.", *Journal of Manufacturing Technology,* Vol. 37 No. 2, pp. 531-50.

CSRD Impact in Portugal: First-year Evidence and Determinants of Application

Kátia Lemos, Sónia Monteiro and Marta Araújo
CICF – Research Center on Accounting and Taxation, School of Management, Polytechnic University of Cávado and Ave (IPCA), Barcelos, Portugal

klemos@ipca.pt
smonteiro@ipca.pt
a21438@alunos.ipca.pt

Abstract: The growing importance of Environmental, Social and Governance (ESG) issues has transformed traditional corporate reporting, challenging the historical focus on financial disclosure alone. While financial reports long served as the main communication tool between companies and stakeholders, growing concerns regarding climate change, social inequalities, business ethics and corporate responsibility revealed the limitations of purely financial information in assessing long-term value creation. Consequently, non-financial disclosure emerged as a key element of corporate transparency, initially supported by voluntary frameworks such as the Global Reporting Initiative (GRI) and the International Integrated Reporting Framework. However, the lack of standardisation led to heterogeneous reporting practices, limiting comparability and reliability. To address these issues, the European Union (EU) shifted from a voluntary to a mandatory sustainability reporting framework. The Non-Financial Reporting Directive (NFRD) represented an important first step, although prior studies identified limitations regarding reporting quality and comparability (Anguiano-Santos et al., 2024; Radu et al., 2023). In response, the EU approved the Corporate Sustainability Reporting Directive (CSRD) in 2022, introducing substantial changes to corporate reporting. The CSRD expands the scope of companies subject to disclosure obligations, incorporates the double materiality principle, requires external assurance, and mandates compliance with the European Sustainability Reporting Standards (ESRS) developed by EFRAG. This study analyses the impact of the CSRD in Portugal during its first year of implementation. The research examines 46 companies listed on Euronext Lisbon, including 28 firms previously covered by the NFRD. Using quantitative content analysis, a compliance index based on 88 ESRS disclosure requirements was developed. The results reveal a relatively low overall compliance level (mean = 0.390), suggesting that Portuguese companies are still adapting to the new framework. Firms previously subject to the NFRD presented significantly higher compliance levels, indicating that prior experience facilitates adaptation. Governance disclosures achieved the highest compliance, whereas environmental disclosures showed the lowest. Regression results identify leverage as a negative determinant of compliance, while sustainability reporting practices, PSI index inclusion and prior NFRD experience positively influence compliance levels. The study contributes to the emerging literature on CSRD implementation and highlights implications for companies, auditors and policymakers regarding sustainability integration and reporting practices.

Keywords: Corporate sustainability reporting directive (CSRD), Sustainability reporting, ESG disclosure, European sustainability reporting standards (ESRS)

1. Introduction

Corporate disclosure plays a fundamental role in promoting transparency, accountability, and communication between organizations and their stakeholders. Growing public awareness of environmental, social, and governance (ESG) issues, together with increasing pressure from regulators, investors, and society, has transformed expectations regarding corporate reporting. While financial information has traditionally been the primary basis for assessing corporate performance, concerns related to climate change, social inequality, human rights, and corporate responsibility have highlighted the need for broader and more comprehensive disclosure practices.

In response to these developments, voluntary frameworks such as the Global Reporting Initiative (GRI) and Integrated Reporting gained widespread adoption and contributed to the expansion of non-financial disclosure. However, the absence of common reporting standards limited the comparability, consistency, and reliability of sustainability information, as companies were free to select their preferred reporting frameworks and disclosure practices.

To address these shortcomings, the European Union introduced the Non-Financial Reporting Directive (NFRD) (Directive 2014/95/EU), requiring large public-interest entities to disclose information on environmental, social,

employee, human rights, and anti-corruption matters. Although the NFRD represented an important step towards greater transparency, its flexible approach resulted in heterogeneous reporting practices and limited comparability across companies.

To strengthen the sustainability reporting framework, the European Union adopted the Corporate Sustainability Reporting Directive (CSRD) (Directive (EU) 2022/2464) in 2022. The CSRD substantially expands the scope of reporting entities, introduces more detailed disclosure requirements, mandates the use of the European Sustainability Reporting Standards (ESRS), and requires external assurance of sustainability information. A key innovation of the directive is the adoption of the double materiality principle, which requires companies to consider both the impact of sustainability issues on financial performance and the impact of corporate activities on society and the environment. Through these changes, the CSRD seeks to improve the quality, consistency, and comparability of sustainability disclosures across the European Union.

Despite the significance of this regulatory reform, empirical evidence on the implementation of the CSRD remains limited, particularly in Portugal. Existing Portuguese studies have mainly focused on compliance with the NFRD (Carmo & Ribeiro, 2022; Pereira et al., 2020). More recently, Azevedo et al. (2025) provided a preliminary assessment of Portuguese companies' preparedness for CSRD implementation, focusing exclusively on firms included in the Portuguese Stock Index (PSI). Consequently, evidence regarding the adaptation of the broader population of listed companies to the new reporting requirements remains scarce.

This study addresses this research gap by examining the first year of CSRD implementation in Portugal. Specifically, it evaluates the level of compliance of companies listed on Euronext Lisbon with ESRS disclosure requirements and investigates the determinants of compliance. By providing one of the first empirical analyses of CSRD implementation in the Portuguese context, this study contributes to the emerging literature on sustainability reporting and offers relevant insights for regulators, auditors, and companies involved in the transition towards the new European sustainability reporting framework.

The remainder of this paper is structured as follows. Section 2 reviews the relevant literature on sustainability reporting and develops the research hypotheses. Section 3 describes the research methodology, including sample selection, data collection procedures, the construction of the ESRS Compliance Index, and the regression model. Section 4 presents and discusses the empirical results regarding the level of compliance with the ESRS requirements and its determinants. Finally, Section 5 concludes the study, highlights its main contributions, discusses its limitations, and suggests avenues for future research.

2. Literature Review and Research Hypotheses

The introduction of the Corporate Sustainability Reporting Directive (CSRD) represents a major regulatory shift in European sustainability reporting. While a substantial body of research has examined compliance with the Non-Financial Reporting Directive (NFRD) (Lourenço, 2017; Romão et al., 2018; Mion & Adaui, 2019; Fuster & Ortiz, 2019; Caputo et al., 2020; Pereira et al., 2020; Balluchi et al., 2021; Arif et al., 2022; Carmo & Ribeiro, 2022; Ottenstein et al., 2022), empirical evidence regarding the implementation of the CSRD remains limited due to its recent application. Existing studies mainly focus on companies' preparedness and early compliance with the new reporting requirements (Celli et al., 2024; Nicolo et al., 2025; Raimo et al., 2025; Sharma, 2025; Azevedo et al., 2025).

The CSRD represents a significant shift in how European companies report. While earlier frameworks, such as the GRI, relied on voluntary adoption, the CSRD establishes a harmonised, legally binding reporting framework aimed at improving the quality, comparability and reliability of sustainability information. This transformation can be interpreted from several theoretical perspectives. According to institutional theory, organisations adapt their structures and practices in response to coercive pressures arising from regulations and institutional expectations (DiMaggio & Powell, 1983). In the context of the CSRD, the ESRS requirements are a powerful regulatory mechanism that encourages firms to align their reporting practices with the new European framework.

Legitimacy theory suggests that organisations disclose sustainability information to maintain social approval and demonstrate their alignment with societal expectations (Suchman, 1995). Similarly, stakeholder theory emphasises that firms respond to the information needs and expectations of investors, regulators, employees, customers and society at large (Freeman, 1984). Consequently, sustainability reporting can be viewed as both a regulatory obligation and a mechanism for preserving legitimacy and strengthening stakeholder relationships (Talha, 2026).

Recent evidence on ESRS implementation supports the relevance of these theoretical perspectives. Drawing on institutional theory and strategic legitimacy theory, Nicolò et al. (2025) argue that organisations adapt their sustainability reporting practices in response to regulatory pressures and the need to maintain legitimacy among stakeholders. From a European perspective, Pichler and Lehner (2017) identified the implementation of the NFRD as an important step towards greater transparency and accountability. The CSRD can therefore be interpreted as the next stage in the evolution of mandatory sustainability reporting within the European Union.

Based on this theoretical background, nine research hypotheses are developed.

Company size

Company size is one of the most widely examined determinants of sustainability disclosure. Larger firms typically possess more sophisticated information systems, face greater public scrutiny, and are subject to stronger stakeholder pressures. Consequently, they tend to provide more extensive sustainability information (Dienes et al., 2016; Hahn & Kühnen, 2013; Carmo & Ribeiro, 2022; Nicolo et al., 2025).

H1: *Larger firms are expected to exhibit higher levels of compliance with ESRS disclosure requirements.*

Industry sector

Previous studies suggest that firms operating in environmentally sensitive industries face stronger legitimacy pressures and therefore disclose more sustainability-related information (Hahn & Kühnen, 2013; Sierra-Garcia et al., 2018). Recent evidence also indicates that companies in high-impact sectors tend to achieve higher levels of CSRD compliance (Nicolo et al., 2025; Raimo et al., 2025).

H2: *Firms operating in the industrial sector are expected to exhibit higher levels of compliance with ESRS disclosure requirements.*

Internationalisation

Internationally active firms are exposed to multiple regulatory environments and a broader range of stakeholders. As a result, they often face higher transparency expectations and stronger incentives to disclose sustainability information (Romão et al., 2018; Fuster & Ortiz, 2019).

H3: *Firms with greater international exposure are expected to exhibit higher levels of compliance with ESRS disclosure requirements.*

Profitability

The relationship between profitability and sustainability disclosure remains inconclusive. While profitable firms may possess greater resources to invest in reporting practices, some studies argue that less profitable firms may disclose more information to legitimise weaker financial performance (Duran & Rodrigo, 2018; Carreira et al., 2025).

H4: More profitable firms are expected to exhibit higher levels of compliance with ESRS disclosure requirements.

Leverage

Highly leveraged firms may increase disclosure levels to reduce information asymmetries and strengthen creditors' confidence. Prior evidence identifies leverage as a relevant determinant of non-financial reporting practices (Ottenstein et al., 2022).

H5: *Firms with higher leverage are expected to exhibit higher levels of compliance with ESRS disclosure requirements.*

Reporting format

Research suggests that sustainability information disclosed through a separate sustainability report tends to be more detailed and comprehensive than information incorporated solely within the management report (Balluchi et al., 2021; Hoffmann et al., 2018).

H6: *Firms issuing a separate sustainability report are expected to exhibit higher levels of compliance with ESRS disclosure requirements.*

Audit firm

External assurance enhances the credibility of sustainability disclosures. Previous studies indicate that companies audited by Big Four audit firms tend to provide higher-quality sustainability information due to greater expertise and reputational concerns (Fernandez-Feijoo et al., 2018; García-Sánchez et al., 2024).

> ***H7:*** *Firms audited by Big Four audit firms are expected to exhibit higher levels of compliance with ESRS disclosure requirements.*

PSI Index membership

Companies included in the Portuguese Stock Index (PSI) are generally larger, more visible, and subject to greater investor scrutiny. Consequently, they may face stronger incentives to comply with sustainability reporting requirements (Azevedo et al., 2025).

> ***H8:*** *PSI-listed firms are expected to exhibit higher levels of compliance with ESRS disclosure requirements.*

Previous NFRD experience

Prior experience with mandatory non-financial reporting may facilitate adaptation to the new ESRS requirements. Companies previously subject to the NFRD have already developed reporting processes, governance structures, and disclosure practices that may support compliance with the CSRD (Mion & Adaui, 2019; Azevedo et al., 2025).

> ***H9:*** *Firms previously subject to the NFRD are expected to exhibit higher levels of compliance with ESRS disclosure requirements.*

3. Research Methodology

Sample selection

This study examines the impact of the Corporate Sustainability Reporting Directive (CSRD) during its first year of implementation in Portugal. Consistent with prior sustainability reporting research (Arkoh et al., 2024; Benvenuto et al., 2023; Farisyi et al., 2022), the analysis focuses on listed companies, which are subject to greater market scrutiny and disclosure requirements.

The sample comprises companies listed on Euronext Lisbon. As of December 2024, 49 firms were listed on the Portuguese stock exchange. Annual reports, sustainability reports, integrated reports, and other publicly available disclosure documents relating to the 2024 financial year were collected from corporate websites.

After excluding three companies that had not yet published their 2024 reports at the time of data collection, the final sample consisted of 46 firms. Among these, 28 companies were already subject to the Non-Financial Reporting Directive (NFRD) and therefore belonged to the first wave of CSRD implementation, while the remaining 18 companies were not yet required to comply with the CSRD.

Data collection and Compliance Index

A mixed-method approach was adopted, combining qualitative content analysis with quantitative statistical analysis.

The content analysis focused on sustainability information disclosed either within the management report or in separate sustainability reports. Compliance was assessed against the disclosure requirements established by the European Sustainability Reporting Standards (ESRS).

The analysis covered the ten ESRS topical standards, comprising five environmental topics (E1–E5), four social topics (S1–S4), and one governance topic (G1). In total, 88 mandatory disclosure requirements were examined: 40 environmental, 40 social, and 8 governance requirements.

To measure the degree of compliance, an ESRS Compliance Index was developed following the approach adopted by Pereira et al. (2020). Each disclosure requirement was evaluated using a binary scoring system, whereby a score of 1 was assigned when the requirement was disclosed and 0 otherwise.

The compliance index was calculated as follows:

$$\boldsymbol{CIndex} = \sum_{n=1}^{i} \frac{\boldsymbol{i_n}}{\boldsymbol{i}} \quad (\mathbf{1})$$

$\boldsymbol{CIndex}$–ESRS Compliance Index.

$\boldsymbol{i_n}$ – Information item i under analysis. A dichotomous (dummy) variable that takes only the values 0 or 1.

$\boldsymbol{i}$ – Number of items comprising the compliance index.

Variables and research model

To identify the determinants of ESRS compliance, a multiple linear regression model was estimated. The dependent variable is the ESRS Compliance Index, while the independent variables correspond to the factors identified in the literature and reflected in the research hypotheses.

The explanatory variables include:

- **Firm Size**: natural logarithm of total assets;
- **Industry Sector**: dummy variable equal to 1 for industrial firms and 0 otherwise;
- **Internationalisation**: dummy variable equal to 1 for multinational firms and 0 otherwise;
- **Profitability**: return on equity (net income divided by total equity);
- **Leverage**: total liabilities divided by total equity;
- **Reporting Format**: dummy variable equal to 1 when sustainability information is disclosed in a separate report and 0 when disclosed within the annual report;
- **Audit Firm**: dummy variable equal to 1 for Big Four audit firms and 0 otherwise;
- **PSI Membership**: dummy variable equal to 1 for companies included in the PSI index and 0 otherwise;
- **NFRD Experience**: dummy variable equal to 1 for firms previously subject to the NFRD and 0 otherwise.

The regression model is specified as follows:

$$\boldsymbol{CIndex} = \boldsymbol{\alpha_0} + \boldsymbol{\beta_1 Size} + \boldsymbol{\beta_2 ISector} + \boldsymbol{\beta_3 Inter} + \boldsymbol{\beta_4 Prof} + \boldsymbol{\beta_5 Lev} + \boldsymbol{\beta_6 RepFormat} + \boldsymbol{\beta_7 AudFirm} + \boldsymbol{\beta_8 PSI} + \boldsymbol{\beta_9 NFRD} + \boldsymbol{\varepsilon_i} \quad (2)$$

This model enables the identification of the firm-specific characteristics associated with higher levels of compliance with the ESRS disclosure requirements.

4. Results and Discussion

4.1 ESRS Compliance Level

The primary objective of this study is to assess the level of compliance of Portuguese listed companies with the ESRS disclosure requirements during the first year of CSRD implementation. Table 1 presents these results, showing how the two groups differ in terms of dissemination.

Table 1: Comparison of compliance rates

	Total sample (46 companies)		**Sub-sample (28 companies)**		
	Mean	**Std Dev**	**Mean**	**Std Dev**	
Compliance Index	0,390	0,321	0,586	0,201	

The results reveal a relatively low overall level of compliance. The mean ESRS Compliance Index for the full sample of 46 companies is 0.390, indicating that, on average, firms disclosed less than 40% of the assessed ESRS requirements. In contrast, companies previously subject to the NFRD achieved a considerably higher mean compliance level of 0.586. These findings suggest that Portuguese companies are still adapting to the new reporting framework. The relatively low level of compliance observed during the first year of implementation suggests that the transition towards the CSRD is an ongoing process. Similar findings were reported by González Tablada et al. (2026), who found that initial compliance efforts are characterised by gradual organisational adaptation rather than immediate, total compliance. From an institutional perspective, it takes time for organisations to develop the internal reporting capabilities, data collection systems and governance mechanisms required to support the new ESRS.

Firms with prior experience in mandatory non-financial reporting appear to be better prepared to meet the more demanding disclosure requirements introduced by the CSRD. This finding is consistent with the evidence reported by Pichler and Lehner (2017) during the implementation of the NFRD, as well as the case-study evidence presented by González Tablada et al. (2026). Companies with previous experience of sustainability reporting tend to have established routines, accumulated expertise and more mature governance structures, which facilitates their adaptation to new reporting requirements. According to Institutional Theory, organisations with pre-existing reporting capabilities are better placed to respond to new coercive pressures.

4.2 Determinants of ESRS Compliance

To identify the factors influencing compliance levels, a multiple linear regression model was estimated. Table 2 provides a summary of the results obtained, based on the entire sample.

Table 2: Results of the multiple linear regression model

Coefficients[a]

Model		Unstandardised coefficients		Standardised coefficients	t	Sig.	Collinearity statistics	
		Beta	Standard deviation	Beta			Tolerance	VIF
1	(Constant)	-0,267	0,329		-0,813	0,422		
	LogAssets	0,017	0,019	0,141	0,932	0,358	0,688	1,454
	Industry sector	-0,045	0,067	-0,062	-0,672	0,506	0,713	1,402
	Internationalisation	0,053	0,064	0,075	0,826	0,414	0,813	1,231
	Profitability	-0,099	0,129	-0,065	-0,763	0,451	0,606	1,650
	Leverage	-0,015	0,008	-0,189	-1,912	0,064	0,625	1,601
	Reporting Format	0,217	0,086	0,246	2,530	0,016	0,623	1,605
	Audit firm	0,063	0,065	0,094	0,965	0,341	0,222	4,503
	PSI Index	0,275	0,109	0,412	2,526	0,016	0,534	1,872
	NFRD Experience	0,273	0,068	0,444	3,984	0,000	0,257	3,896

a. Dependent variable: CIndex

Model Summary

Model	R	R^2	Adjusted R^2	Standard deviation of the estimate
1	0.887[a]	0,787	0,734	0,165

a. Predictors: (Constant), LogAsset, Profitability, Reporting format, Sector, Internationalisation, Leverage, Audit firm, NFRD Experience, PSI Index

b. Dependent variable: CIndex

Anova[a]

Model		Sum of squares	Df	Mean of squares	F	Sig.
1	Regression	3,650	9	0,403	14,804	<.001[b]
	Residue	0,986	36	0,027		
	Total	4,637	45			

a. Dependent variable: CIndex

b. Predictors: (Constant), LogAsset, Profitability, Reporting format, Sector, Internationalisation, Leverage, Audit firm, NFRD Experience, PSI Index

The model explains a substantial proportion of the variation in compliance levels ($R^2 = 0.787$) and is statistically significant overall ($p < 0.001$), indicating a good fit.

The results identify three variables as significant positive determinants of ESRS compliance: reporting format, PSI index membership, and previous NFRD experience. In addition, leverage is statistically significant at the 10% level but exhibits a negative association with compliance.

Reporting Format

The results show that companies issuing a separate sustainability report achieve higher compliance levels than those disclosing sustainability information solely within the management report. This finding supports H6 and is consistent with previous research suggesting that separate sustainability reports provide a more structured and comprehensive disclosure framework (Balluchi et al., 2021; Hoffmann et al., 2018).

PSI Index Membership

Membership in the PSI index is positively associated with ESRS compliance, supporting H8. PSI-listed companies are generally more visible to investors and other stakeholders, which increases external scrutiny and creates stronger incentives to adopt more transparent sustainability reporting practices. This result is consistent with previous evidence from the Portuguese context (Carmo & Ribeiro, 2022; Pereira et al., 2020; Azevedo et al., 2025). This result can also be interpreted in terms of legitimacy theory and stakeholder theory. PSI-listed companies tend to be more visible to investors and society, consequently facing greater expectations regarding transparency and accountability. According to Talha (2026), sustainability disclosure can strengthen stakeholder confidence and organisational legitimacy. Consequently, highly visible firms may perceive greater reputational benefits from complying with ESRS requirements.

Previous NFRD Experience

The strongest positive determinant of compliance is prior experience with the NFRD. Companies previously subject to mandatory non-financial reporting exhibit significantly higher compliance levels, supporting H9. This finding suggests that established reporting processes, accumulated expertise, and familiarity with sustainability disclosure requirements facilitate adaptation to the ESRS framework. The positive effect of prior NFRD experience emphasises the significance of organisational learning in transitioning to mandatory sustainability reporting. In line with the findings of González Tablada et al. (2026) and Nicolò et al. (2025), firms that have already established reporting practices seem to be in a better position to adapt to the requirements of the European Sustainability Reporting Standards (ESRS), which supports the institutional view that previous routines facilitate responses to regulatory change.

Leverage

Leverage presents a statistically significant negative relationship with compliance, contrary to H5. Although previous studies suggest that highly leveraged firms may increase disclosure to reduce information asymmetries (Ottenstein et al., 2022), the results indicate that financially constrained firms may allocate fewer resources to sustainability reporting activities during the transition to the CSRD framework. Talha (2026) argues that organisations under financial pressure may struggle to reap the benefits of sustainability disclosure. This study identified a negative relationship, indicating that highly leveraged firms may prioritise short-term financial pressures over investments in reporting systems and sustainability-related processes.

Non-Significant Variables

Firm size, industry sector, internationalisation, profitability, and audit firm type do not exhibit statistically significant effects on compliance levels. Consequently, hypotheses H1, H2, H3, H4, and H7 are not supported.

The absence of significant relationships may reflect the relatively homogeneous characteristics of listed Portuguese companies, particularly regarding size and international exposure. Furthermore, previous studies have also provided mixed evidence regarding the factors that influence sustainability reporting (Benvenuto et al., 2023; Arkoh et al., 2024). Furthermore, the mandatory and standardised nature of the ESRS framework could mitigate some of the disparities typically observed under more voluntary reporting systems. During the initial stage of CSRD implementation, it seems that compliance levels are primarily driven by previous reporting experience and practices rather than structural characteristics such as size, sector, profitability or audit firm type. However, as organisations become more familiar with the new framework, these factors may exert a greater influence over time.

Overall, the findings suggest that the first year of CSRD implementation in Portugal reflects an organisational adaptation process driven by regulatory pressures, stakeholder expectations and the pursuit of legitimacy. In line with Institutional Theory, Legitimacy Theory and Stakeholder Theory, as well as recent evidence provided by Nicolò et al. (2025), it seems that firms with prior reporting experience, greater public visibility and more structured reporting practices are better placed to comply with the new ESRS requirements. These findings suggest that the transition from voluntary to mandatory sustainability reporting occurs through progressive organisational learning rather than immediate adjustment.

5. Conclusions, Limitations and Future Research

The implementation of the Corporate Sustainability Reporting Directive (CSRD) represents a significant milestone in the evolution of sustainability reporting within the European Union. By introducing mandatory European Sustainability Reporting Standards (ESRS), external assurance requirements, and the principle of double materiality, the directive seeks to improve the quality, comparability, and reliability of sustainability information disclosed by companies.

This study examined the first year of CSRD implementation in Portugal by analysing the level of compliance of companies listed on Euronext Lisbon with ESRS disclosure requirements and identifying the determinants of compliance. The findings reveal that overall compliance remains relatively low, with an average compliance index of 0.390. These results suggest that many Portuguese listed companies are still in the early stages of adapting to the new reporting framework.

The analysis also demonstrates that prior experience with mandatory non-financial reporting plays a crucial role in facilitating compliance. Companies previously subject to the Non-Financial Reporting Directive (NFRD) achieved significantly higher compliance levels, highlighting the importance of accumulated reporting experience, established governance structures, and organisational learning. Furthermore, PSI-listed companies and firms issuing separate sustainability reports exhibited higher compliance levels, suggesting that market visibility and more structured reporting practices contribute positively to the implementation of the ESRS.

In contrast, leverage was found to be negatively associated with compliance. This finding indicates that financially constrained firms may face greater difficulties in allocating resources to sustainability reporting activities during the transition period. No significant relationships were identified between compliance and firm size, industry sector, internationalisation, profitability, or audit firm type.

The study contributes to the emerging literature on CSRD implementation by providing one of the first empirical assessments of ESRS compliance in Portugal. Unlike previous research focusing primarily on NFRD requirements or on PSI-listed companies alone, this study examines a broader sample of Portuguese listed firms during the first year of mandatory implementation. The findings provide valuable insights into the organisational characteristics associated with successful adaptation to the new sustainability reporting framework.

From a practical perspective, the results are relevant for regulators, auditors, and corporate managers. The findings suggest that prior reporting experience and structured sustainability reporting practices facilitate compliance with the ESRS. Consequently, organisations that are not yet fully prepared for future reporting obligations may benefit from strengthening internal reporting systems, governance mechanisms, and sustainability data collection processes.

Several limitations should be acknowledged. First, the study focuses exclusively on companies listed on Euronext Lisbon, limiting the generalisability of the findings to non-listed entities that will also become subject to CSRD requirements. Second, the analysis covers only the first year of implementation, a period characterised by organisational adaptation and regulatory transition. Third, the content analysis methodology, although widely used in sustainability reporting research, inevitably involves a degree of researcher judgement in the assessment of disclosure practices.

Future research could extend the analysis to non-listed companies and investigate how compliance evolves over time as organisations gain experience with the ESRS requirements. Longitudinal studies would provide valuable evidence regarding the maturity of sustainability reporting practices and the long-term effects of the CSRD. In addition, comparative studies across European countries could enhance understanding of how institutional, economic, and regulatory factors influence the adoption and implementation of the new sustainability reporting framework.

Acknowledgements

This study was conducted at the Research Center on Accounting and Taxation (CICF) and was funded by the Portuguese Foundation for Science and Technology (FCT) through national funds with the reference UID/04043/2025 and doi https://doi.org/10.54499/UID/04043/2025

Ethics Declaration: This investigation did not require an ethical clearance.

AI Declaration: Artificial intelligence tools were used only for translation, grammar checking, and text verification.

References

Arif, M., Gan, C., & Nadeem, M. (2022). Regulating non-financial reporting: evidence from European firms' environmental, social and governance disclosures and earnings risk. *Meditari Accountancy Research*, *30*(3), 495–523. https://doi.org/10.1108/MEDAR-11-2020-1086

Arkoh, P., Costantini, A., & Scarpa, F. (2024). Determinants of sustainability reporting: A systematic literature review. *Corporate Social Responsibility and Environmental Management*, *31*(3), 1578–1597. https://doi.org/10.1002/CSR.2645

Azevedo, G., Oliveira, J., Sousa, I., Borges, M. F., Tavares, M. C., & Vale, J. (2025). Disclosure of Sustainability Information Under the Corporate Social Responsibility Directive: The Degree of Compliance of Portuguese Stock Index. *International Journal of Financial Studies*. https://doi.org/10.3390/ijfs13010013

Balluchi, F., Lazzini, A., & Torelli, R. (2021). Credibility of environmental issues in non-financial mandatory disclosure: Measurement and determinants. *Journal of Cleaner Production*, *288*. https://doi.org/10.1016/J.JCLEPRO.2020.125744

Benvenuto, M., Aufiero, C., & Viola, C. (2023). A systematic literature review on the determinants of sustainability reporting systems. *Heliyon*, *9*(4), e14893. https://doi.org/10.1016/J.HELIYON.2023.E14893

Caputo, F., Leopizzi, R., Pizzi, S., & Milone, V. (2020). The non-financial reporting harmonization in Europe: Evolutionary pathways related to the transposition of the directive 95/2014/EU within the Italian context. *Sustainability (Switzerland)*, *12*(1), 1–13. https://doi.org/10.3390/SU12010092

Carmo, C., & Ribeiro, C. (2022). Mandatory Non-Financial Information Disclosure under European Directive 95/2014/EU: Evidence from Portuguese Listed Companies. *Sustainability (Switzerland)*, *14*(8). https://doi.org/10.3390/SU14084860

Celli, M., Arduini, S., & Beck, T. (2024). Corporate sustainability reporting directive (CSRD) and his future application scenario for italian SMEs. *International Journal of Business and Management*, *19*(4). https://doi.org/10.5539/ijbm.v19n4p44

Dienes, D., Sassen, R., & Fischer, J. (2016). What are the drivers of sustainability reporting? A systematic review. *Sustainability Accounting, Management and Policy Journal*, *7*(2), 154–189. https://doi.org/10.1108/SAMPJ-08-2014-0050

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147–160. https://doi.org/10.2307/2095101

Duran, I. J., & Rodrigo, P. (2018). Why Do Firms in Emerging Markets Report? A Stakeholder Theory Approach to Study the Determinants of Non-Financial Disclosure in Latin America. *Sustainability 2018, Vol. 10, Page 3111*, *10*(9), 3111. https://doi.org/10.3390/SU10093111

Farisyi, S., Musadieq, M. Al, Utami, H. N., & Damayanti, C. R. (2022). A Systematic Literature Review: Determinants of Sustainability Reporting in Developing Countries. *Sustainability (Switzerland)*, *14*(16). https://doi.org/10.3390/SU141610222

Fernandez-Feijoo, B., Romero, S., & Ruiz, S. (2014). Effect of Stakeholders' Pressure on Transparency of Sustainability Reports within the GRI Framework. *Journal of Business Ethics*, *122*(1), 53–63. https://doi.org/10.1007/S10551-013-1748-5

Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman.

Fuster, M., & Ortiz, E. (2019). Integrated information, external verification and other conditions. *Innovar*, *29*(73), 39–54. https://doi.org/10.15446/INNOVAR.V29N73.78010

García-Sánchez, I. M., Aibar-Guzmán, B., Raimo, N., Vitolla, F., & Schiuma, G. (2024). Climate governance, growth opportunities, and innovation in addressing climate change: Empirical evidence from emerging countries. *Finance Research Letters*, *70*, 106328. https://doi.org/10.1016/J.FRL.2024.106328

Gonzalez Tablada, N., Korca, B., & Schiemann, F. (2026). Preparing for the corporate sustainability reporting directive: Case study evidence of initial compliance efforts. *Accounting in Europe*, 1–31. https://doi.org/10.1080/17449480.2026.2684325

Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: a review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production*, *59*, 5–21. https://doi.org/10.1016/J.JCLEPRO.2013.07.005

Hoffmann, E., Dietsche, C., & Hobelsberger, C. (2018). Between mandatory and voluntary: non-financial reporting by German companies. *NachhaltigkeitsManagementForum | Sustainability Management Forum*, *26*(1–4), 47–63. https://doi.org/10.1007/S00550-018-0479-6

Lourenço, H. G. (2017). *A divulgação de informações não financeiras no âmbito da Diretiva 2014/95/UE: o atual grau de cumprimento das empresas cotadas em Portugal*. Dissertação de Mestrado. https://repositorio-aberto.up.pt/handle/10216/108113

Mangiuc, M. D., & Kagitci, M. (2025). CSRD as a paradigm shift in sustainability reporting: From voluntary practice to legal requirement. *Amfiteatru Economic*, 27(70), 1193–1208. https://doi.org/10.24818/EA/2025/70/1193

Mion, G., & Adaui, C. R. L. (2019). Mandatory nonfinancial disclosure and its consequences on the sustainability reporting quality of Italian and German companies. *Sustainability (Switzerland)*, *11*(17). https://doi.org/10.3390/SU11174612

Nicolo, G., Zampone, G., Sannino, G., & Polcini, P. T. (2025). Ready for Change After the Omnibus Package? Early Compliance with the European Sustainability Reporting Standards and Its Key Determinants in the New Regulatory Era. *Business Strategy and the Environment*, *0*, 1–19. https://doi.org/10.1002/BSE.70054

Ottenstein, P., Erben, S., Jost, S., Weuster, C. W., & Zülch, H. (2022). From voluntarism to regulation: effects of Directive 2014/95/EU on sustainability reporting in the EU. *Journal of Applied Accounting Research*, *23*(1), 55–98. https://doi.org/10.1108/JAAR-03-2021-0075

Pereira, L., Lemos, K., Monteiro, S., Ribeiro; V. (2020). Compliance with DL 89/17 related to mandatory non- financial reporting: evidence from companies listed on the portuguese stock exchange, Proceedings of the International Conference of Applied Business and Management (ICABM2020) 25th - 26th of June 2020 | ISAG-EBS, Porto, Portugal, ISBN: 978-989-54164-2-4 | ISSN: 2184-7428

Pichler, K., & Lehner, O. M. (2017). *European Commission – New Regulations Concerning Environmental and Social Impact Reporting*. ACRN Oxford *Journal of Finance and Risk Perspectives*, 6(1), 1–54.

Raimo, N., L'Abate, V., Sica, D., & Vitolla, F. (2025). Integrated reporting and the Corporate Sustainability Reporting Directive: bridging the gap or growing apart? *Management Decision*. https://doi.org/10.1108/MD-10-2024-2408

Romão, A. L., Cabrita, I., Castro, A. S. & Ferreira, A. P. (2018). A divulgação de informação não financeira nas empresas portuguesas. In XVIII Encontro Nacional AECA (pp. 1-26). Lisboa, Portugal.

Sharma, R. (2025). Unveiling the effects of the Corporate Sustainability Reporting Directive (CSRD) on company sustainability reporting practices: a case of German companies. *Sustainability Accounting, Management and Policy Journal*. https://doi.org/10.1108/SAMPJ-01-2025-0091

Sierra-Garcia, L., Garcia-Benau, M. A., & Bollas-Araya, H. M. (2018). Empirical Analysis of Non-Financial Reporting by Spanish Companies. *Administrative Sciences 2018, Vol. 8, Page 29*, *8*(3), 29. https://doi.org/10.3390/ADMSCI8030029

Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20(3), 571–610. https://doi.org/10.2307/258788

Talha, M. (2026). Mandatory ESG disclosure and corporate performance: Evidence from the EU CSRD. *Corporate Social Responsibility and Environmental Management*. Advance online publication. https://doi.org/10.1002/csr.70471

The Auditor's Dilemma: AI Adoption, Trust and Regulatory Legitimacy in Auditing

Isabel Maldonado[1], Carlos Pinho[2], Natacha Silva[1, 3] and Helena Costa Oliveira[4]
[1]Research on Economics, Management and Information Technologies (REMIT), Portucalense University, Porto, Portugal
[2]DEGEIT and GOVCOPP – Universidade de Aveiro, Portugal
[3]UNIAG, Bragança Polytechnic University, Campus de Santa Apolónia, Bragança, Portugal
[4]CEOS.PP, ISCAP, Polytechnic of Porto, Portugal

imaldonado@iscap.ipp.pt
cpinho@ua.pt
natachasilva@ipb.pt
helena@iscap.ipp.pt

Abstract: Artificial intelligence (AI) is widely expected to reshape auditing, yet its diffusion within the profession remains uneven and conceptually fragmented. Existing studies have examined adoption, analytics, explainability, governance and ethical concerns, but these elements are rarely integrated into a common account of how AI becomes acceptable in audit practice. This paper addresses that gap by examining the literature through the perspective of the auditor's dilemma: the tension between AI adoption, trust and regulatory legitimacy in a highly regulated profession. It argues that AI in auditing should be understood not merely as a technology adoption issue, but as a broader professional and institutional challenge in which technical capability must be reconciled with explainability, accountability and oversight. Yet these benefits do not remove the human element: auditor experience, professional scepticism and oversight remain essential to interpreting, challenging and validating AI-supported audit evidence (Samiolo et al., 2024). The paper adopts a systematic literature review design guided by a PRISMA 2020-informed approach. Based on a Scopus search, 94 records were identified, screened, and narrowed to a final analytical corpus of 23 studies. The review synthesizes this evidence thematically and develops an integrative conceptual framework. The findings show that AI diffusion in auditing depends on three interrelated conditions. First, adoption requires organizational readiness, including technological maturity, data quality, skills, process compatibility and client readiness. Second, sustained use requires trust-based professional acceptance, supported by explainability, transparency, robustness and compatibility with auditor judgment and professional scepticism. Third, steady dissemination depends on regulatory legitimacy, which is shaped by documentation, traceability, reviewability, governance and compatibility with standards and oversight. The review also shows that AI-enabled procedures may face resistance not only because of technical limitations, but because auditors and regulators may not regard them as legitimate within established audit-quality expectations. This paper contributes in three ways. First, it consolidates a fragmented but rapidly growing body of literature on AI in auditing. Second, it advances an original framework linking organizational readiness, trust-based professional acceptance and regulatory legitimacy. Third, it shifts the debate beyond conventional technology-acceptance reasoning by showing that, in auditing, AI must be not only useful, but also explainable, auditable and institutionally defensible. Overall, the paper concludes that the future of AI in auditing will depend less on technological availability than on whether AI can become trusted, reviewable and regulatorily legitimate within the assurance environment.

Keywords: Artificial intelligence, Auditing, Trust, Explainability, Regulatory legitimacy

1. Introduction

Artificial intelligence (AI) is increasingly viewed as one of the most significant technological developments affecting the auditing profession. Across audit and assurance activities, AI-related tools are expected to support anomaly detection, document analysis, risk assessment, pattern recognition and workflow automation, promising gains in efficiency, broader analytical coverage and enhanced decision support (Kokina *et al.*, 2025; Seethamraju and Hecimovic, 2023; Torroba *et al.*, 2025). At the same time, AI in auditing is no longer a niche technical issue but a broader governance and professional challenge shaped by ethics, transparency, human judgment and institutional oversight (Ahmi and Smidt, 2026; Kassar and Jizi, 2025).

A useful starting point for understanding this development is the technology-acceptance tradition. The Technology Acceptance Model (TAM) explains technology use through perceived usefulness and perceived ease of use (Davis, 1989), while later work stresses the importance of social influence, job relevance, output quality and user experience (Venkatesh and Davis, 2000). In audit settings, this logic remains relevant because firms are more likely to adopt AI when it is perceived as improving efficiency, expanding analytical capability or enhancing audit effectiveness. However, these models are less sufficient in professional environments shaped by organizational routines, external expectations and institutional constraints (Ruhnke, 2023).

Auditing is one such environment. Unlike many other professional domains, auditing is a highly regulated assurance setting in which technology use is constrained by standards, documentation requirements, audit-evidence expectations, regulatory oversight, and legal liability (Larmande and Lesage, 2023; Li and Goel, 2025a; Zhang *et al.*, 2022). AI in auditing is therefore not simply another phase of digital modernization, but a case of technology adoption within a profession where technical capability must be reconciled with audit evidence, professional scepticism, reviewability and accountability. Austin et al. (2021) show that the diffusion of analytics in the financial reporting environment is shaped by interactions among auditors, managers, regulators and technology, while Ruhnke (2023) argues that audit innovation is best understood through the interplay of technology, actors, rules and auditors' judgment and decision-making processes.

This makes AI adoption in auditing fundamentally different from adoption in less regulated settings. Existing studies suggest that uptake is influenced not only by technological benefits, but also by organizational readiness, data quality, trust, standards, regulation and client readiness (Seethamraju and Hecimovic, 2023). Empirical evidence from Spain similarly indicates that although auditors express willingness to implement AI and data analytics, actual adoption remains constrained, with regulation emerging as a particularly influential factor (Torroba *et al.*, 2025). Evidence from Kokina et al. (2025)suggests that firms face challenges related to transparency, explainability, privacy, robustness, bias, overreliance and the need for supporting data and human infrastructure before AI can be used at scale . Thus, the diffusion of AI in auditing depends not only on whether the technology works, but also on whether it can be trusted, governed and defended within the institutional logic of assurance.

A central source of tension is explainability. As AI models become more powerful, they often become less transparent. In auditing, this is especially problematic because auditors must be able to understand, justify and document how conclusions are reached. Zhang et al. (2022) identify lack of explainability as one of the main obstacles to AI adoption in accounting and auditing and argue that explainable AI can help satisfy audit documentation and audit evidence requirements. This is reinforced by Li and Goel (2025), who show that AI auditability depends on transparency, documentation, traceability, governance structures and accessible auditable artifacts. Their findings also suggest growing cross-jurisdictional convergence around accountability, transparency, robustness, privacy and explainability, even if implementation remains uneven.

The challenge, however, extends beyond explainability. AI-enabled procedures must also gain professional and regulatory legitimacy. Emett et al. (2023) show that external auditors may judge analytics-enabled audit procedures as lower in quality than traditional procedures because they appear less effortful, even when the level of assurance is held constant. This suggests that technologically enhanced procedures may fail to gain legitimacy not because they are technically inferior, but because they do not fit conventional cues of what high-quality audit work is expected to look like. In a profession where engagement work is routinely scrutinized by internal auditors, peer auditors and regulators, such perceptions can materially slow innovation.

At the same time, AI reshapes rather than removes professional judgment. Samiolo et al. (2024) argue that even highly standardized audit tasks often contain important elements of deliberation, reflexivity and sensemaking, particularly for junior auditors developing professional scepticism. Lehner et al. (2022) also identify objectivity, privacy, transparency, accountability and trustworthiness as central ethical challenges of AI-based decision-making in accounting and auditing. Together, these studies show that AI in auditing is not simply about replacing human effort with machine capability, but about reorganizing judgment, responsibility and trust in technology-mediated audit work.

Despite rapid growth in this field, the literature remains more cumulative than integrative (Ahmi and Smidt, 2026; Kassar and Jizi, 2025). Existing studies generate valuable insights on adoption, analytics, explainability, automation, governance and ethics, yet these strands are rarely brought together within a common conceptual account of how AI becomes accepted in audit practice. The unresolved issue is therefore not simply whether auditors adopt AI, but under what conditions AI becomes trusted, reviewable, and regulatorily legitimate in a highly regulated profession (Austin *et al.*, 2021; Li and Goel, 2025b; Ruhnke, 2023; Zhang *et al.*, 2022).

In this context,, this paper examines the emerging literature through the perspective of the auditor's dilemma: the tension between AI adoption, trust and regulatory legitimacy in auditing. It argues that AI in auditing should not be understood solely as a technological adoption issue, but as a broader professional and institutional challenge in which technical capability must be reconciled with trust, explainability, accountability and regulatory acceptance. To address this issue, the paper undertakes a systematic review of Scopus-indexed literature and synthesizes the field around three interrelated themes: AI adoption and organizational readiness, trust and explainability and regulatory legitimacy in audit practice. On this basis, it develops an integrative

conceptual framework and proposes a future research agenda for understanding how AI may become not only technically useful, but also professionally acceptable and institutionally legitimate in auditing.

2. Review Design

This study adopts a systematic literature review design guided by a PRISMA 2020-informed logic (Page *et al.*, 2021) to structure the identification, screening, eligibility assessment and reporting of the evidence base. This is a theory-building review, not a meta-analysis. Rather than estimating combined effect sizes, it brings together different conceptual and empirical contributions to explain AI adoption, trust, and regulatory legitimacy in auditing.

The literature search was conducted in Scopus database, selected for its multidisciplinary coverage across business, accounting, decision sciences, economics, and computer science. The search string was:

TITLE-ABS-KEY ("artificial intelligence" AND audit* AND (adoption OR diffusion OR acceptance) AND (explainab* OR regulat* OR liability)) AND (LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "DECI") OR LIMIT-TO (SUBJAREA , "ECON") OR LIMIT-TO (SUBJAREA , "COMP")) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "cp"))

The search was restricted to Business, Management and Accounting; Decision Sciences; Economics, Econometrics and Finance; and Computer Science. It was also limited to journal articles and conference papers, allowing the review to capture both more mature contributions and relevant frontier work in a rapidly evolving field.

Studies were included when they explicitly addressed AI or closely related digital technologies in auditing, audit firms, public accounting, internal auditing, or assurance, or when they examined AI adoption, acceptance, diffusion, explainability, auditability, trust, liability, regulation, governance, or competitive effects in the auditing or accounting profession. Studies were excluded if they consisted of editorials, book chapters, notes, dissertations, or other non-peer-reviewed outputs; purely technical computer-science papers without clear audit or accounting relevance and papers focused exclusively on education, classroom tools, or student attitudes without direct relevance to professional practice.

The search yielded 94 records. One duplicate was identified. After title and abstract screening, 64 records were excluded. The remaining 29 studies were retained for full-text review and inclusion in the analytical corpus. Of these, 20 were journal articles and 9 were conference papers. Furthermore, six reports were excluded because the full text could not be retrieved: 2 articles and 4 conference papers. The full process is presented in Figure 1.

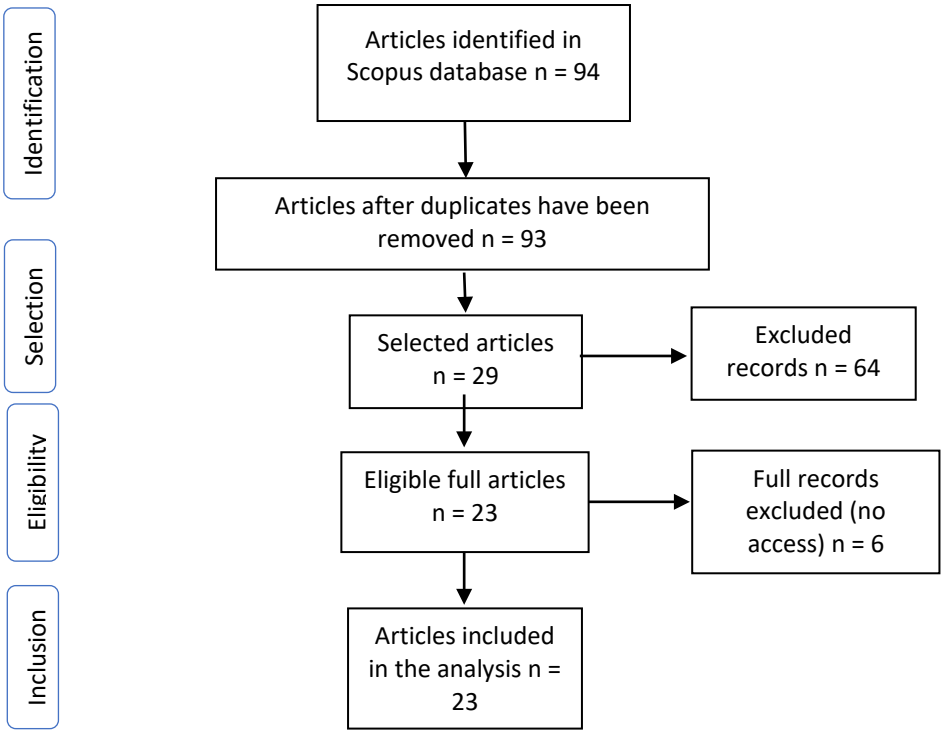


Figure 1: Sample selection process (PRISMA flow diagram)

The studies were then coded thematically, with particular attention to whether they emphasized adoption and diffusion, trust and explainability, auditability and accountability, or regulatory and governance implications. This process led to the three thematic dimensions that structure the remainder of the paper: a) AI adoption and organizational readiness in auditing; b) trust, explainability and professional acceptance; and c) regulatory legitimacy, accountability and the future of audit practice.

3. Theoretical Foundations

Understanding AI in auditing requires more than a single theoretical lens. The literature shows that AI-related change cannot be explained only by technological efficiency or user preference; it emerges at the intersection of individual acceptance, organizational readiness, professional judgment, explainability, and external oversight (Austin *et al.*, 2021; Li and Goel, 2025b, 2025a; Ruhnke, 2023; Seethamraju and Hecimovic, 2023; Zhang *et al.*, 2022). This review therefore combines technology-acceptance and diffusion theories, socio-technical and judgment-oriented perspectives, and trust, explainability, and auditability perspectives.

From a technology-acceptance perspective, AI adoption depends partly on perceived usefulness and perceived ease of use (Davis, 1989). However, later work and the auditing literature show that adoption is also shaped by broader contextual conditions. Diffusion-oriented approaches, especially the Technological – Organizational - Environmental (TOE) framework (Tornatzky *et al.*, 1990) and Innovation Diffusion Theory (IDT) (Rogers, 2003), suggest that adoption in auditing depends on technological factors such as maturity and compatibility, organizational factors such as readiness, knowledge, data quality and trust, and environmental factors such as standards, regulation, and client readiness (Seethamraju and Hecimovic, 2023; Torroba *et al.*, 2025)AI adoption in auditing is therefore better understood as a conditional, institutionally embedded process than as a simple user-choice decision.

Auditing is also a socio-technical and judgment-intensive profession. Austin et al. (2021) show that audit innovation is shaped by interactions among auditors, managers, regulators, and technology, while Ruhnke (2023) argues that technological change is mediated by technology, actors, external rules, and auditors' cognitive processes. AI tools do not create value automatically; their effects depend on how auditors interpret, question, and incorporate them into professional judgment. Samiolo et al. (2024) reinforce this point by showing that even apparently routine tasks involve deliberation and reflexivity, implying that AI reconfigures rather than removes judgment.

Trust and explainability are therefore central. (Zhang *et al.*, 2022) show that opaque AI outputs are difficult to reconcile with audit-evidence and documentation requirements. Li and Goel (2025) extend this argument through an auditability framework based on training data, model, process, governance and people, emphasizing intended-use documentation, logs, traceability, governance structures, and accountability arrangements. Lehner et al. (2022) add an ethical dimension by showing that objectivity, privacy, transparency, accountability, and trustworthiness remain critical concerns.

These perspectives converge on regulatory legitimacy. In this review, regulatory legitimacy refers to the extent to which AI-enabled audit practices are seen as acceptable, defensible, and compatible with the standards, oversight expectations, and evaluative logics of the profession. Technically effective tools may still fail to diffuse if they are not regarded as legitimate by auditors, inspectors, standard setters, or regulators. Emett et al. (2023) illustrate this clearly by showing that external auditors may perceive analytics-enabled procedures as lower in quality when they appear less effortful. AI in auditing must therefore be understood as a process of professional and institutional accommodation, not merely technological implementation.

4. Literature Synthesis

The literature reviewed focuses on three interrelated dimensions which, taken together, explain the emerging role of AI in auditing.

4.1 AI Adoption and Organizational Readiness in Auditing

A first theme concerns the antecedents of AI adoption in auditing. Most studies agree that AI-related tools promise efficiency gains, broader coverage, improved anomaly detection, better risk assessment and more value-adding insights (Austin *et al.*, 2021; Seethamraju and Hecimovic, 2023). Yet adoption is neither automatic nor uniform. It depends on whether firms possess the capabilities needed to integrate AI into auditable workflows. Studies consistently highlight technological maturity, data quality, skills, knowledge, trust, process

compatibility, standards, regulation and client readiness as key conditions for implementation (Seethamraju and Hecimovic, 2023; Torroba *et al.*, 2025).

The literature also shows that AI diffusion may require a rethinking of audit practice itself. Seethamraju and Hecimovic (2023) argue that black-box technologies can make audit work more hidden and more exposed to scrutiny over quality. Austin et al. (2021) similarly describe innovation as a journey shaped by tensions over fees, regulatory ambiguity and independence concerns. Ruhnke (2023) adds that actual use depends on the interaction of actors, technologies and external rules. Overall, adoption is presented as a process of organizational and institutional adaptation rather than a smooth path to modernization.

4.2 Trust, Explainability, and Professional Acceptance

A second theme concerns the conditions under which AI can be trusted and professionally accepted in audit practice. The central issue is not simply whether AI produces useful results, but whether those results can be understood, scrutinized, documented and defended. Zhang et al. (2022) place explainability at the center of this discussion by showing that lack of explainability constrains the extent to which auditors can rely on AI outputs under documentation and evidence requirements. Explainability thus becomes a practical prerequisite for meaningful audit use rather than a technical luxury.

Field evidence from Kokina et al. (2025) reinforces this fact. They identify transparency, explainability, interpretability, bias, privacy, robustness, and fear of overreliance as major obstacles to wider AI use. Torroba et al. (2025) and Seethamraju and Hecimovic (2023) likewise show that trust is a core determinant of adoption. In auditing, trust is not merely user confidence; it depends on whether AI outputs are sufficiently transparent, reliable and controllable to support sceptical reasoning.

Professional acceptance is further complicated by the relationship between AI and auditor judgment. Samiolo et al. (2024) show that even apparently routine tasks often involve deliberation and learning, particularly for junior auditors. AI therefore does not remove judgment from auditing, but relocates and reshapes it. Taken together, the literature suggests that acceptance depends on whether AI supports sceptical inquiry rather than bypassing it.

4.3 Regulatory Legitimacy, Accountability, and the Future of Audit Practice

The third dimension concerns regulatory legitimacy and accountability. This stream asks whether AI-enabled audit procedures are viewed as acceptable by auditors, regulators and other stakeholders who shape the profession's standards of quality and legitimacy. Austin et al. (2021) how that the lack of regulation specific to analytics creates confusion and frustration, while regulators worry that some uses of advanced technology may impair independence or alter the audit function in undesirable ways.

Emett et al. (2023) make this legitimacy problem especially visible by showing that external auditors may regard analytics-based procedures as lower in quality when they appear to require less effort, even if the level of assurance is unchanged. This implies that technologically enhanced procedures may face resistance even when they are not technically inferior. Legitimacy is therefore assessed through review processes and heuristic evaluation criteria, not only through formal rules..

Li and Goel (2025a) address accountability through the concept of AI auditability, arguing that organizations must provide auditable artifacts across model development, data governance, deployment and monitoring. Their framework emphasizes intended-use documentation, provenance information, logs, traceability, governance standards and accountability structures. Overall, this literature suggests that AI becomes practicable in auditing only when it is not only efficient and trusted, but also reviewable, documented, explainable and aligned with the quality expectations of the assurance environment.

5. Conceptual Framework

Figure 2 presents a framework in which AI diffusion in auditing depends on three conditions: organizational readiness, trust-based professional acceptance, and regulatory legitimacy.

First, organizational readiness refers to the technological, human, and procedural conditions required to embed AI in audit processes, including technological maturity, data quality, employee skills and knowledge, process compatibility, and client readiness (Seethamraju and Hecimovic, 2023; Torroba *et al.*, 2025). Without such readiness, AI remains promising rather than practically usable.

Second, trust-based professional acceptance captures the conditions under which auditors can rely on AI outputs in professional judgment. Explainability, transparency, robustness, interrogability, human oversight, and support for judgment and scepticism are central here (Kokina *et al.*, 2025; Zhang *et al.*, 2022). Professional acceptance arises when AI supports, rather than obscures or displaces, sceptical inquiry and judgment.

Third, regulatory legitimacy refers to whether AI-enabled audit practices are seen as acceptable, defensible, and compatible with the expectations of regulators, auditors, standard setters and the wider assurance environment. It depends on documentation, traceability, reviewability, governance, accountability and compatibility with standards and oversight (Li and Goel, 2025b). Emett et al. (2023) further show that legitimacy is also filtered through review heuristics, so AI-enabled procedures must appear credible to those assessing audit quality ex post.

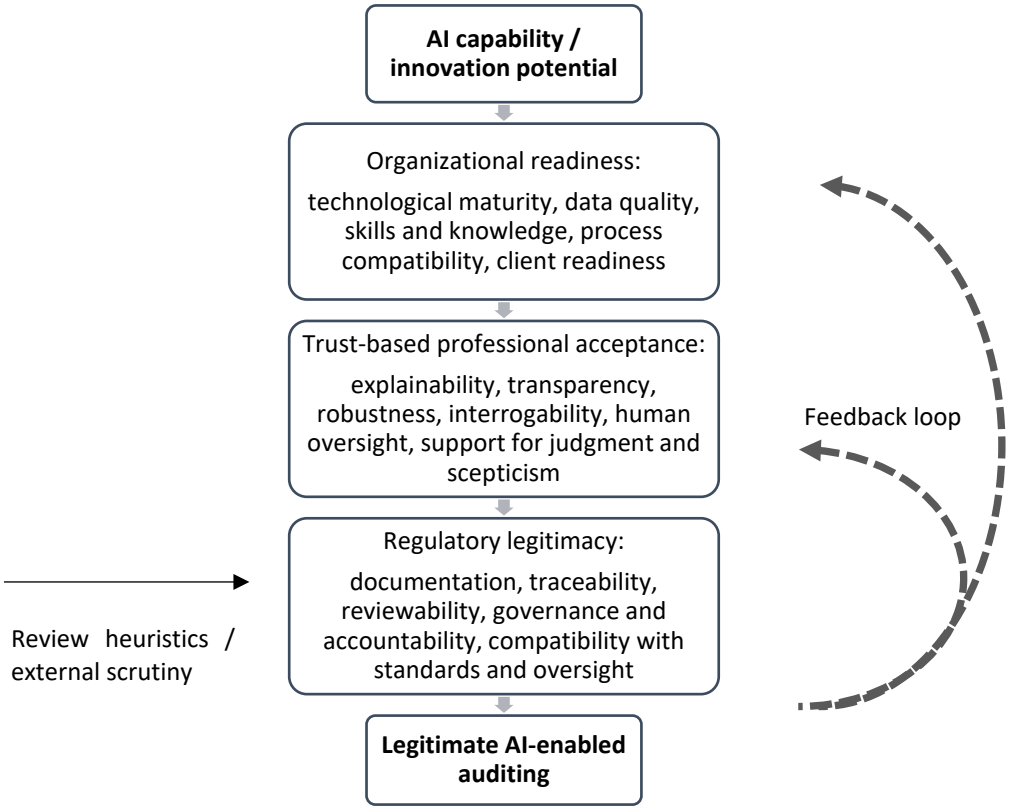


Figure 2: Conceptual framework of AI adoption, trust, and regulatory legitimacy in auditing

The framework is sequential but recursive. AI first faces a readiness question: can the firm implement it? It then faces a professional-acceptance question: can auditors trust and use it consistently with judgment and scepticism? Finally, it faces a legitimacy question: can AI-enabled procedures be justified, documented, reviewed, and accepted within the profession's institutional expectations? Only when all three conditions are met can AI move toward stable diffusion in audit practice.

The framework also includes feedback effects. Greater professional acceptance may stimulate further investment in readiness, while stronger regulatory guidance may enhance both trust and implementation confidence. Conversely, failed reviews, weak explainability, or governance breakdowns may discourage further investment. The outcome is legitimate AI-enabled auditing: AI that is not only available and efficient, but also professionally accepted, auditable, and institutionally defensible.

6. Propositions and Future Research Agenda

Several directions deserve emphasis. First, AI in auditing should be studied through multilevel and comparative designs across countries, firm types and audit settings. Second, greater attention should be given to the human element in AI-enabled auditing, particularly how auditor experience, professional scepticism and human oversight shape the interpretation, challenge, override and validation of algorithmic outputs. Third, future research should develop audit-specific governance and evaluation frameworks linking AI to materiality, risk thresholds, evidence sufficiency, audit trails and reviewability (Ahmi and Smidt, 2026; Li and Goel, 2025b).

The framework developed above suggests that AI in auditing spreads through the joint operation of organizational readiness, trust-based professional acceptance and regulatory legitimacy. This logic can be translated into six propositions.

Proposition 1. *Organizational readiness is positively associated with the adoption of AI in auditing.*

Proposition 2. *The positive association between organizational readiness and AI adoption is strengthened when auditors perceive AI tools as explainable and trustworthy.*

Proposition 3. *Professional acceptance of AI in auditing is higher when AI outputs support, rather than obscure, auditor judgment and sceptical inquiry.*

Proposition 4. *Regulatory legitimacy of AI-enabled auditing is positively associated with the presence of auditable governance mechanisms, including documentation, traceability and clearly defined accountability structures.*

Proposition 5. *The relationship between AI-enabled audit procedures and perceived audit quality is moderated by review heuristics and oversight expectations.*

Proposition 6. *Stable diffusion of AI in auditing is most likely when organizational readiness, trust-based professional acceptance, and regulatory legitimacy are jointly present.*

Future research should refine measures of readiness, examine auditor–AI interaction and scepticism, compare explainability and auditability designs, and study regulatory legitimacy through review, inspection, and cross-jurisdictional variation (Seethamraju and Hecimovic, 2023; Torroba *et al.*, 2025; Samiolo *et al.*, 2024; Zhang *et al.*, 2022; Li and Goel, 2025b; Austin *et al.*, 2021; Emett *et al.*, 2023).

7. Discussion

7.1 Theoretical Implications

AI in auditing should not be treated as a narrow technology-acceptance problem. Auditing is a socio-technical and institutionally constrained profession in which technologies are interpreted through standards, documentation, review routines and public-interest expectations (Austin *et al.*, 2021; Ruhnke, 2023).

A second implication is that trust and explainability should be treated as central mechanisms rather than secondary implementation concerns. In auditing, trust is not simply an attitude toward technology; it is a professional judgment about whether AI outputs can be interrogated, documented, and incorporated into sceptical reasoning (Kokina *et al.*, 2025; Zhang *et al.*, 2022).

A third implication is that regulatory legitimacy is not reducible to formal compliance. Emett et al. (2023) show that review heuristics matter, while Li and Goel (2025b) show that AI auditability requires documentation, traceability, logs, governance structures, and auditable artifacts. AI in auditing is therefore best understood as an object of review-based legitimacy.

Although developed in the auditing context, this logic may extend to other regulated professions in which AI-supported decisions require human oversight, explainability, accountability and institutional legitimacy.

7.2 Practical and Regulatory Implications

For audit firms, AI adoption should be approached as a capability-building and governance challenge, not merely as a technology investment. Effective implementation requires readiness in data quality, skills, process compatibility, client cooperation, governance, documentation and validation (Kokina *et al.*, 2025; Seethamraju and Hecimovic, 2023). Firms should therefore invest not only in models, but also in supporting artifacts such as documentation, provenance records, process logs and governance maps.

For regulators, the central challenge is to reduce the gap between technological practice and the interpretive capacity of oversight frameworks. Clearer guidance is needed on documentation, evidence sufficiency in AI-assisted procedures, model governance and the relationship between explainability and professional scepticism (Kassar and Jizi, 2025; Li and Goel, 2025b). Review and inspection processes may also need updating, since less effortful-looking procedures can be penalized even when assurance is unchanged (Emett *et al.*, 2023).

7.3 Limitations

This review has several limitations. First, it relies on a single database, Scopus, and a focused search string centred on AI, auditing, adoption, diffusion, acceptance, explainability, regulation and liability. Second, it

includes journal articles and conference papers, which is defensible in an emerging field but combines contributions of different maturity levels. Third, the review is interpretive and theory-building rather than meta-analytic, limiting stronger claims about effect sizes or universal causal relationships. Finally, the field remains rapidly evolving, so the patterns identified here should be read as a structured synthesis rather than a definitive map of a stabilized domain (Ahmi and Smidt, 2026).

7.4 Future Directions

Several directions deserve emphasis. First, AI in auditing should be studied through multilevel and comparative designs across countries, firm types, and audit settings. Second, more work is needed on auditor–AI interaction, especially how auditors interpret, challenge, override, or rely on algorithmic outputs. Third, future research should develop audit-specific governance and evaluation frameworks linking AI to materiality, risk thresholds, evidence sufficiency, audit trails and reviewability (Ahmi and Smidt, 2026; Li and Goel, 2025b). More broadly, the most valuable studies will explain how technological capability is, or is not, translated into trusted, reviewable, and institutionally legitimate audit practice.

8. Conclusion

This review examines AI in auditing through the lens of the auditor's dilemma: the tension between adoption, trust, and regulatory legitimacy in a highly regulated profession. It shows that AI diffusion depends on whether firms are organizationally prepared, whether auditors can trust and explain AI outputs in ways consistent with professional scepticism and audit evidence, and whether AI-enabled procedures are reviewable and acceptable within the institutional architecture of auditing. The paper contributes by integrating fragmented literature, proposing a framework linking readiness, trust-based professional acceptance, and regulatory legitimacy, and showing that AI in auditing must be not only useful but also explainable, auditable, and defensible under review and oversight.

Generally speaking, this review claims that the future of AI in auditing will be determined not by whether the technology is available, but by whether it can be integrated into practice in a way that is trusted by auditors, intelligible to auditors and acceptable to regulators. The auditor's dilemma therefore remains central: innovation in auditing must be reconciled with the profession's enduring demands for accountability, scepticism, transparency and legitimacy. By clarifying that dilemma and organizing the literature around it, this paper provides a foundation for future research, practice and regulation aimed at supporting responsible AI-enabled auditing.

Acknowledgements

This work is funded by national funds through FCT – Fundação para a Ciência e a Tecnologia, I.P., under the Programme Contract UID/05105/2025. https://doi.org/10.54499/UID/05105/2025.

This work was supported by national funds through FCT - Fundação para a Ciência e Tecnologia, I.P. under the project UNIAG UID/04752/2025 (DOI 10.54499/UID/04752/2025).

Ethics Declaration: No ethical approval was required for this study, as it is based exclusively on published sources and does not involve human subjects or personal data.

AI Declaration: An AI tool was used language refinement after manuscript development. All literature selection, interpretation, argumentation and final editing were reviewed and validated by the authors, who take full responsibility for the content.

References

Ahmi, A. and Smidt, L. (2026), "AI-driven auditing: trends, themes, and research trajectories", *EDPACS*, Taylor and Francis Ltd., doi: 10.1080/07366981.2026.2637772.

Austin, A.A., Carpenter, T.D., Christ, M.H. and Nielson, C.S. (2021), "The Data Analytics Journey: Interactions Among Auditors, Managers, Regulation, and Technology*", *Contemporary Accounting Research*, John Wiley and Sons Inc, Vol. 38 No. 3, pp. 1888–1924, doi: 10.1111/1911-3846.12680.

Davis, F.D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly*, Vol. 13 No. 3, pp. 319–340, doi: https://doi.org/10.2307/249008.

Emett, S.A., Kaplan, S.E., Mauldin, E.G. and Pickerd, J.S. (2023), "Auditing with data and analytics: External reviewers' judgments of audit quality and effort", *Contemporary Accounting Research*, John Wiley and Sons Inc, Vol. 40 No. 4, pp. 2314–2339, doi: 10.1111/1911-3846.12894.

Kassar, M. and Jizi, M. (2025), "Artificial intelligence and robotic process automation in auditing and accounting: a systematic literature review", *Journal of Applied Accounting Research*, Emerald Publishing, doi: 10.1108/JAAR-05-2024-0175.

Kokina, J., Blanchette, S., Davenport, T.H. and Pachamanova, D. (2025), "Challenges and opportunities for artificial intelligence in auditing: Evidence from the field", *International Journal of Accounting Information Systems*, Elsevier Inc., Vol. 56, doi: 10.1016/j.accinf.2025.100734.

Larmande, F. and Lesage, C. (2023), "Auditor's professional judgment, audit efficiency and interplay between legal liability and regulatory oversight", *Journal of Accounting and Public Policy*, Elsevier Inc., Vol. 42 No. 6, doi: 10.1016/j.jaccpubpol.2023.107130.

Lehner, O.M., Ittonen, K., Silvola, H., Ström, E. and Wührleitner, A. (2022), "Artificial intelligence based decision-making in accounting and auditing: ethical challenges and normative thinking", *Accounting, Auditing and Accountability Journal*, Emerald Group Holdings Ltd., Vol. 35 No. 9, pp. 109–135, doi: 10.1108/AAAJ-09-2020-4934.

Li, Y. and Goel, S. (2025a), "Artificial intelligence auditability and auditor readiness for auditing artificial intelligence systems", *International Journal of Accounting Information Systems*, Elsevier Inc., Vol. 56, doi: 10.1016/j.accinf.2025.100739.

Li, Y. and Goel, S. (2025b), "Bridging IT auditors and AI auditing: Understanding pathways to effective IT audits of AI-driven processes", *Advances in Accounting*, Emerald Publishing, Vol. 69, doi: 10.1016/j.adiac.2025.100842.

Page, M.J., McKenzie, J.E., Bossuyt, P.M., Boutron, I., Hoffmann, T.C. and ... (2021), "The PRISMA 2020 statement: An updated guideline for reporting systematic reviews", *BMJ*, Vol. 372 No. 71, doi: https://doi.org/10.1136/bmj.n71.

Rogers, E.M.. (2003), *Diffusion of Innovations*, Free Press.

Ruhnke, K. (2023), "Empirical research frameworks in a changing world: The case of audit data analytics", *Journal of International Accounting, Auditing and Taxation*, Elsevier Ltd, Vol. 51, doi: 10.1016/j.intaccaudtax.2023.100545.

Samiolo, R., Spence, C. and Toh, D. (2024), "Auditor judgment in the fourth industrial revolution", *Contemporary Accounting Research*, John Wiley and Sons Inc, Vol. 41 No. 1, pp. 498–528, doi: 10.1111/1911-3846.12901.

Seethamraju, R. and Hecimovic, A. (2023), "Adoption of artificial intelligence in auditing: An exploratory study", *Australian Journal of Management*, SAGE Publications Ltd, Vol. 48 No. 4, pp. 780–800, doi: 10.1177/03128962221108440.

Tornatzky, L.G.., Fleischer, Mitchell. and Chakrabarti, A.K.. (1990), *The Processes of Technological Innovation*, Lexington Books.

Torroba, M., Sánchez, J.R., López, L. and Callejón, Á. (2025), "Investigating the impacting factors for the audit professionals to adopt data analysis and artificial intelligence: Empirical evidence for Spain", *International Journal of Accounting Information Systems*, Elsevier Inc., Vol. 56, doi: 10.1016/j.accinf.2025.100738.

Venkatesh, V. and Davis, F.D. (2000), "A theoretical extension of the technology acceptance model: Four longitudinal field studies", *Management Science*, Vol. 46 No. 2, pp. 186–204, doi: https://doi.org/10.1287/mnsc.46.2.186.11926.

Zhang, C. (Abigail), Cho, S. and Vasarhelyi, M. (2022), "Explainable Artificial Intelligence (XAI) in auditing", International Journal of Accounting Information Systems, Elsevier Inc., Vol. 46, doi: 10.1016/j.accinf.2022.100572.

A Typology of Strategic Collective Decision-making in Health NGOs

Peter Mazunga and Noel J. Pearse
Rhodes University, Makhanda, South Africa

petermazunga@yahoo.com
N.Pearse@ru.ac.za

Abstract: Strategic collective decision-making in non-governmental organisations (NGOs) has been largely neglected by researchers, with limited attention given to how contextual conditions shape the unfolding of strategic decisions in practice. This paper examines decision-making in health NGOs operating under resource constraints, donor pressures, and governance complexity. The findings are drawn from a more extensive Straussian grounded theory study of five diverse South African health NGOs, in which data were collected through semi-structured interviews. The research identified three types of strategic collective decision-making: *Simple, Conventional, and Onerous.* This typology emerges from specific configurations of contextual factors, including funding uncertainty, stakeholder salience, governance structures, and information ambiguity, and reflects distinct patterns of strategic collective decision-making. Simple strategic collective decision-making is characterised by pragmatic coordination and moderate consultation in response to manageable strategic challenges. On the other hand, conventional strategic collective decision-making reflects routinised and historically embedded practices that provide organisational stability but may limit critical reflection. Finally, onerous strategic collective decision-making arises under conditions of high uncertainty and organisational risk, involving intensive collective deliberation, emotional engagement, and complex negotiation among strategic decision-makers. The findings demonstrate that strategic collective decision-making is a contextually contingent and negotiated organisational practice. NGOs move dynamically between the types as contextual pressures shift, with each type reflecting different levels of perceived risk, urgency, and organisational alignment. In this way, strategic collective decision-making is understood as an interactive process through which organisations continuously balance inclusivity, responsiveness, and sustainability. The paper therefore offers a contextually sensitive understanding of how strategic decisions are enacted in mission-driven organisations, and provides practical insights for NGO leaders, funders, and policymakers directly or indirectly involved in collective strategic decision-making under conditions of uncertainty, particularly in resource-constrained and donor-driven environments.

Keywords: Collective decision-making, Strategic decision-making, Strategic leadership, Non-governmental organisations

1. Introduction

Health NGOs play an important role in addressing public health challenges, particularly in contexts where state healthcare systems face resource and capacity constraints. In South Africa, health NGOs contribute significantly to Human Immunodeficiency Virus (HIV)/ Acquired Immunodeficiency Syndrome (AIDS), Tuberculosis (TB), maternal health, and broader community health interventions (Swilling and Russell, 2002; Habib, 2013). However, these organisations frequently operate within unstable environments characterised by donor dependency, resource uncertainty, shifting policy priorities, and increasing accountability pressures (Ebrahim, 2003; Lewis, 2009). Within such contexts, strategic collective decision-making becomes critical for organisational sustainability and service continuity.

Despite the strategic importance of decision-making in NGOs, existing literature has largely focused on governance structures, accountability mechanisms, and participatory ideals, with limited attention given to how strategic collective decision-making unfolds in practice within mission-driven organisations (Renz and Herman, 2016; Lewis, Kanji and Themudo, 2020). Decision-making scholarship has also predominantly emerged from corporate and public-sector settings (Eisenhardt and Zbaracki, 1992; Langley et al., 1995), where assumptions of managerial rationality and hierarchical authority may inadequately reflect the relational and contextual realities of NGOs.

The South African health NGO context intensifies these complexities. Health NGOs must continuously navigate unstable funding environments, donor-driven programme priorities, competing stakeholder expectations, and evolving public health demands (Banks, Hulme and Edwards, 2015). Strategic collective decision-making is therefore shaped not only by formal governance structures but also by contextual dynamics such as organisational culture, stakeholder salience, trust, information ambiguity, and perceived organisational risk. Under conditions of uncertainty, strategic collective decision-making may become fragmented, delayed, emotionally demanding, or politically contested (Leach, 2016).

Although prior studies acknowledge factors influencing decision-making in NGOs, including leadership style, organisational culture, donor pressures, and stakeholder complexity (Hailey and James, 2004; Noor, Isa and Muhammad, 2021), limited empirical attention has been given to how contextual conditions shape distinct forms of strategic collective decision-making in practice. Existing research has also tended to privilege

governance structures and planning processes over the lived organisational dynamics through which strategic decisions are collectively negotiated and enacted (Md Isa et al., 2021).

This paper addresses this gap by examining strategic collective decision-making within South African health NGOs. Drawing on findings from a broader Straussian grounded theory study conducted across five diverse health NGOs, the paper focuses on three empirically derived types of strategic collective decision-making: Simple, Conventional, and Onerous. These types reflect different patterns of strategic interaction that emerge under varying contextual conditions and organisational complexity levels. The paper argues that strategic collective decision-making within health NGOs is not a uniform or linear process, but rather a contextually contingent and negotiated organisational practice. By identifying three types of strategic collective decision-making, the paper provides a context-sensitive understanding of how strategic decisions are enacted within mission-driven organisations operating under conditions of uncertainty and resource constraints.

2. Literature Review

Decision-making has long been recognised as a central organisational process influencing strategy, performance, and organisational sustainability. Early decision-making theories conceptualised decisions as rational and linear processes (Simon, 1947; 1997), while later scholarship emphasised bounded rationality, uncertainty, and the socially constructed nature of organisational decision-making (Weick, 1995; Langley et al., 1995; Schilirò, 2018). Consequently, collective decision-making is increasingly viewed as a dynamic and contextually embedded process shaped by relationships, power dynamics, organisational conditions, and stakeholder interactions (Carmeli, Brueller and Dutton, 2009). Although collaborative decision-making can enhance participation, information sharing, and legitimacy (Sagie and Aycan, 2003), it may also become politically contested and more complex under conditions of uncertainty (Leach, 2016).

Strategic decision-making research has similarly evolved from rational models towards recognising the influence of environmental uncertainty, leadership, and organisational context. Eisenhardt (1989) argues that effective strategic decision-making in dynamic environments depends on the leadership teams' ability to integrate information rapidly and adaptively, while Elbanna and Child (2007) demonstrate that strategic decisions are shaped by both behavioural and contextual factors. More recent scholarship further conceptualises strategic decision-making as a socially embedded and adaptive process through which organisations respond to complexity and change (Shepherd and Rudd, 2014; Cristofaro, 2021).

These dynamics are particularly evident within NGOs, which operate in hybrid governance environments characterised by donor dependency, social missions, multiple accountability relationships, and resource constraints (Edwards and Hulme, 1996; Lewis, 2009). In South African health NGOs, strategic decision-making is further influenced by unstable funding environments, evolving public health priorities, donor pressures, and stakeholder complexity (Banks, Hulme and Edwards, 2015). Consequently, strategic collective decision-making extends beyond formal governance procedures and is shaped by organisational culture, trust, stakeholder influence, and perceived organisational risk.

Existing NGO scholarship has largely focused on governance structures, accountability systems, and participatory leadership (Ebrahim, 2003; Lewis, 2009), while studies have shown that donor dependency, information ambiguity, and environmental uncertainty significantly influence organisational behaviour (Bebbington, 2005; Andrews, 2014). Under these conditions, strategic decision-making often becomes more deliberative, politically contested, and emotionally demanding (Kruke and Olsen, 2011). However, limited attention has been given to explaining how contextual conditions shape different forms of strategic collective decision-making within NGOs, particularly under varying levels of organisational risk and uncertainty (Md Isa et al., 2021).

Recent scholarship increasingly positions strategic collective decision-making as a contextually embedded process influenced by uncertainty, stakeholder complexity, adaptive governance, and organisational resilience (Cristofaro, 2021; Healey, Querbes and Bleda, 2021; Bryson, Crosby and Barberg, 2023). Similarly, nonprofit governance research highlights the growing importance of adaptive leadership and organisational resilience in sustaining mission delivery within volatile funding and policy environments (Singh, Martins and Tefera, 2022; Kazanskaia, 2025). Despite these advances, limited empirical research explains how contextual conditions give rise to distinct forms of strategic collective decision-making within health NGOs.

This paper addresses that gap by examining how contextual conditions shape three empirically derived types of strategic collective decision-making: Simple, Conventional, and Onerous. In doing so, it contributes a context-sensitive understanding of strategic decision-making within mission-driven organisations operating under conditions of uncertainty, governance complexity, and resource constraint.

3. Methodology

This paper draws on findings from a broader qualitative study that employed Strauss and Corbin's (1990; 1998) grounded theory methodology to explore strategic collective decision-making within South African health NGOs. Grounded theory was considered appropriate because the study sought to develop an empirically grounded understanding of how strategic collective decision-making unfolds in complex, resource-constrained organisational environments. The study was conducted across five diverse South African health NGOs operating within different programme and funding contexts. Purposive and theoretical sampling techniques were used to identify participants with strategic leadership responsibilities. Eighteen strategic leaders participated in the study, with a combined 220 years of experience in health NGOs, including CEOs, COOs, executive directors, and leaders in Finance, Programme, HR, and Monitoring and Evaluation. All participants occupied strategic leadership positions with direct responsibility for organisational governance and strategic decision-making. This diverse leadership profile provided multiple perspectives on collective strategic decision-making across organisational contexts.

Data were collected primarily through semi-structured interviews, which ranged from approximately 45 to 90 minutes and explored participants' experiences of strategic decision-making, governance practices, stakeholder engagement, donor influence, and organisational responses to changing contextual conditions.

Data analysis followed Strauss and Corbin's (1998) grounded theory procedures of open, axial, and selective coding. Constant comparative analysis and memo writing were used throughout the analytical process to identify recurring patterns, relationships, and contextual conditions that influence decision-making. Theoretical saturation was reached when additional interviews yielded no substantively new conceptual categories or relationships. Through iterative analysis, three distinct types of strategic collective decision-making emerged: Simple, Conventional, and Onerous.

4. Findings: Types of Strategic Collective Decision-making in Health NGOs

Data analysis revealed that strategic collective decision-making within health NGOs does not occur through a single uniform process. Rather, organisations move dynamically between different forms of strategic collective decision-making, depending on contextual conditions, organisational pressures, and perceived levels of strategic risk. Three interrelated types of strategic collective decision-making emerged from the analysis (i.e. Simple, Conventional, and Onerous), reflecting varying levels of deliberative intensity, stakeholder engagement, organisational uncertainty, and strategic complexity. The findings suggest that strategic collective decision-making in health NGOs is highly context-sensitive and negotiated, with organisations shifting between the three types as conditions change.

4.1 Simple Strategic Collective Decision-making (SSCDM)

Simple strategic collective decision-making emerged in contexts characterised by manageable levels of uncertainty and relatively contained strategic challenges. This type of decision-making was commonly associated with operational adjustments, moderate programme changes, and decisions where organisational implications were perceived as limited and manageable. Participants described simple strategic collective decision-making as pragmatic, coordinated, and solution-oriented, with decisions generally reached through moderate consultation among relevant organisational strategic leaders without prolonged deliberation. One participant explained:

> *"It's normally not a hefty debate... more like: here's the issue, what do you think?" (NGO 1_Leader 2_10)*

Another participant reflected on the simplicity and responsiveness of these processes:

> *"We don't complicate things. We ask the key questions: What's the issue? Who needs to act? What's the impact? And then we move." (NGO 1_Leader 5_23)*

Simple strategic collective decision-making was frequently shaped by contextual conditions such as stable donor relationships, clear information, manageable programme demands, and relatively low organisational risk. Under such conditions, leadership teams maintained collaborative engagement while preserving decision-making efficiency. The findings further indicate that Simple SCDM relied heavily on operational intelligence, existing organisational trust, and established communication structures. One participant noted:

> *"Before deciding, we always check with Ops. Can this work, given what's happening on the ground?" (NGO 1_Leader 3_21)*

Another participant highlighted the role of informal collaboration and collective alignment:

> *"We talk on WhatsApp, sometimes a few voice notes back and forth. Before you know it, we have the skeleton of a decision ready for the team to build on." (NGO 2_Leader 2_11)*

Participants consistently associated simplicity with efficiency rather than the absence of strategic depth. As one participant explained:

> *"Simplicity doesn't mean it's not strategic. It means we don't waste time or energy. We make decisions that move us forward." (NGO 4_Leader 2_24)*

Although disagreement and contestation were generally limited within Simple SCDM, participants acknowledged that decisions could become more complex as contextual pressures intensified. Funding uncertainty, stakeholder disagreement, or increased organisational risk could quickly shift decision-making toward more deliberative and demanding forms.

4.2 Conventional Strategic Collective Decision-making (CSCDM)

Conventional strategic collective decision-making reflected routinised and historically embedded organisational practices that provided stability and continuity within health NGOs. This type was associated with established governance procedures, recurring strategic discussions, and familiar organisational processes that had become institutionalised over time. Participants frequently described conventional strategic collective decision-making as guided by organisational norms, formal governance structures, and established decision-making routines. One participant explained:

> *"We've been doing strategy planning like this for years. The director calls a meeting, the heads of units prepare their inputs, and we discuss for a couple of hours. Everyone knows their role." (NGO 2_Leader 2_8)*

Another participant highlighted the predictability and familiarity associated with this mode of decision-making:

> *"The system's a bit old school, but it gives structure. You know what to expect, and that's reassuring, especially in a chaotic environment." (NGO 1_Leader 3_22)*

Conventional strategic collective decision-making was strongly influenced by organisational history, governance routines, and institutional memory. Board structures, Executive committee (Exco) meetings, programme reviews, and donor reporting cycles frequently shaped the rhythm and structure of strategic deliberations. One participant reflected:

> *"There's a standing agenda every time Exco meets. You don't just show up. You need to do your research... then we have a fruitful discussion." (NGO 4_Leader 1_12)*

Participants further noted that conventional strategic collective decision-making created procedural predictability and collective buy-in, even during difficult strategic decisions:

> *"Even if it's not your way, if the process is fair, you respect the outcome." (NGO 1_Leader 2_14)*

The findings indicate that conventional strategic collective decision-making contributed positively to organisational stability by reducing ambiguity and reinforcing governance consistency. Established procedures enabled organisations to respond efficiently to recurring strategic matters while maintaining collective involvement among leadership teams. However, participants also highlighted limitations associated with this type of decision-making. In some cases, routinised governance processes constrained flexibility and reduced critical reflection. One participant noted:

> *"Sometimes it feels autocratic, but that's okay. We can't all be involved in every decision." (NGO 1_Leader 2_14)*

Another participant reflected on the tendency toward procedural inertia:

> *"You come into the room knowing what's likely to be said. It's not rigid, it's just... known. That's comforting." (NGO 4_Leader 1_12)*

The findings therefore suggest that while conventional strategic collective decision-making enhances organisational continuity, predictability, and governance legitimacy, it may also limit adaptability and innovation under rapidly changing organisational conditions.

4.3 Onerous Strategic Collective Decision-making (OSCDM)

Onerous strategic collective decision-making emerged under conditions of heightened uncertainty, elevated organisational risk, and significant strategic consequences. This type represented the most intensive and emotionally demanding form of strategic collective decision-making identified in the study. Participants associated Onerous SCDM with funding crises, donor compliance pressures, organisational restructuring, programme pivots, and decisions carrying significant operational or reputational implications. One participant described the emotional burden of these processes:

> *"We knew whatever we chose, someone would suffer. It wasn't just strategic; it was deeply personal." (NGO 3_Leader 1_22)*

Another participant reflected on the exhausting nature of prolonged strategic deliberations:

> *"You end up with decision fatigue. It's not that people are indecisive, it's the system that tires them out." (NGO 1_Leader 2_14)*

Unlike Simple or Conventional strategic collective decision-making, Onerous SCDM involved heightened levels of uncertainty, stakeholder contestation, and emotional engagement. Participants described repeated meetings, circular deliberations, and ongoing negotiations aimed at balancing organisational sustainability with mission commitments and donor expectations. One participant explained:

> *"It's like we meet, defer, meet again... it goes in circles. Nothing gets finalised." (NGO 1_Leader 2_10)*

Another participant highlighted the impact of donor uncertainty on strategic processes:

> *"When the donor shifts priorities, we don't bypass our processes, but it creates a lot of internal stress. Everyone's scrambling." (NGO 4_Leader 1_26)*

The findings further suggest that Onerous SCDM exposed underlying tensions relating to leadership authority, trust, inclusion, and organisational culture. Participants frequently described situations in which consultation became prolonged and emotionally draining. As one participant noted:

> *"It can be demoralising. You go through the motions, but you know your input won't change the outcome." (NGO 1_Leader 5_22)*

Another participant reflected on the cumulative organisational strain created by unresolved strategic processes:

> *"By the third or fourth time the same issue comes back, people just say, 'Whatever you decide is fine.'" (NGO 1_Leader 2_14)*

Participants also associated Onerous SCDM with extended governance and external validation loops involving boards and donors, which frequently delayed implementation and intensified organisational fatigue.

> *"One issue can bounce between the donor, the board, and us for months. You lose steam." (NGO 4_Leader 2_26)*

The findings therefore suggest that Onerous SCDM extends beyond procedural governance processes and becomes a deeply relational, emotionally charged, and interpretive organisational activity. Under these conditions, leadership teams engage in intensive collective sensemaking while attempting to reconcile uncertainty, organisational survival, stakeholder expectations, and mission alignment.

Figure 1 illustrates the iterative and multi-layered nature of Onerous Strategic Collective Decision-Making (OSCDM) within health NGOs. The figure demonstrates that strategic decisions under heightened uncertainty often involve prolonged deliberation, repeated consultation, stakeholder engagement, and recursive governance processes before collective organisational alignment is achieved.

4.4 Dynamic Movement Between the Three Types

Although the three types are analytically distinct, the findings indicate that strategic collective decision-making within health NGOs is fluid rather than fixed. Organisations moved dynamically between Simple, Conventional, and Onerous strategic collective decision-making as contextual conditions shifted. Participants emphasised that strategic decision-making could evolve rapidly in response to funding uncertainty, stakeholder pressures, governance demands, and emerging organisational risks. One participant reflected on how relatively manageable strategic issues could quickly intensify:

"The issue went from being about office space to being about sustainability and strategic focus." (NGO 1_Leader 2_12)

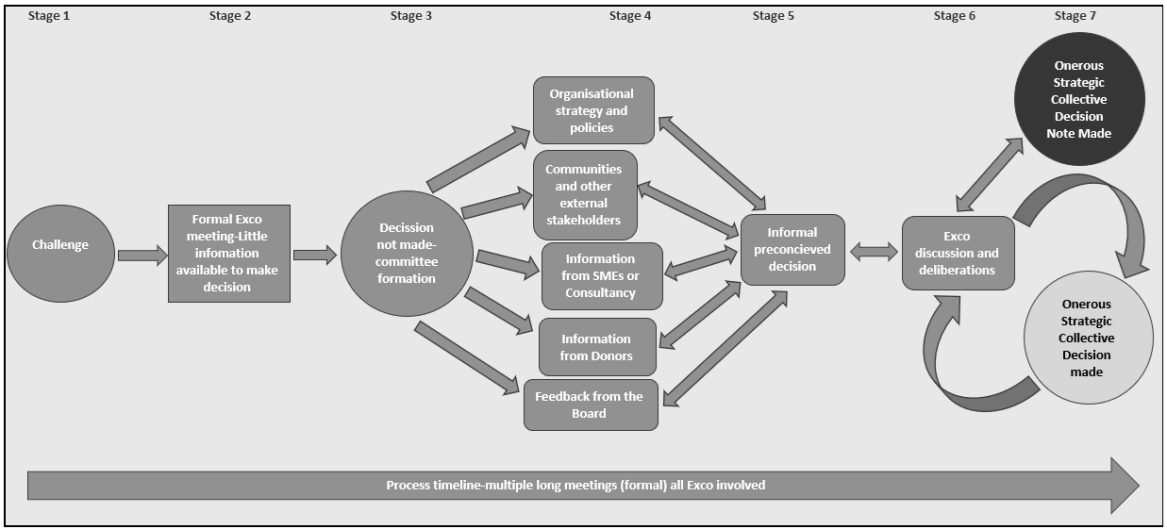


Figure 1: Process dynamics of Onerous Strategic Collective Decision-Making (OSCDM)

Another participant explained how donor pressures could rapidly transform strategic processes:

"You would think the urgency would push things forward, but it made people more cautious." (NGO 3_Leader 2_30)

The findings further suggest that strategic collective decision-making frequently shifted between routinised governance processes and more deliberative, emotionally demanding forms depending on organisational context. However, participants also highlighted how familiar governance routines could become strained under heightened uncertainty:

"Every choice opened another set of questions. It was big." (NGO 3_Leader 3_14)

The movement between the three types was strongly shaped by contextual conditions such as donor dependency, stakeholder salience, information ambiguity, and organisational vulnerability. Participants described how strategic processes that initially appeared straightforward could become prolonged and onerous as uncertainty increased. One commented:

"What was meant to be collective turned into political manoeuvring." (NGO 1_Leader 5_22)

Another participant reflected on the cumulative effect of prolonged strategic uncertainty:

"You feel like you're paddling hard, but you're stuck in the same place." (NGO 2_Leader 1_20)

The findings, therefore, demonstrate that strategic collective decision-making within health NGOs is neither linear nor static. Rather, it is a dynamic and contextually contingent organisational practice through which leadership teams continuously negotiate organisational alignment, responsiveness, and sustainability under changing organisational conditions.

Table 1 summarises the principal characteristics of the three empirically derived types of strategic collective decision-making identified in this study. Although analytically distinct, the three types should be understood as contextually contingent rather than fixed categories. Health NGOs move between these types as organisational conditions, stakeholder pressures, and environmental uncertainty evolve.

5. Discussion

The findings, synthesised in Table 1, demonstrate that strategic collective decision-making within health NGOs is a dynamic organisational process shaped by contextual conditions rather than fixed governance procedures. Consistent with contemporary strategic decision-making scholarship (Eisenhardt, 1989; Elbanna and Child, 2007; Cristofaro, 2021), strategic leadership teams continuously adapt their collective decision-making practices in response to uncertainty, stakeholder pressures, and organisational risk. The study therefore provides a context-sensitive understanding of how strategic decisions are enacted within mission-driven organisations. Rather than

supporting purely rational or hierarchical models of decision-making (Eisenhardt and Zbaracki, 1992; Simon, 1997), the findings suggest that strategic collective decision-making is inherently relational, negotiated, and adaptive. The three types represent varying levels of deliberative intensity, ranging from pragmatic coordination under manageable conditions (Simple SCDM) to routinised governance processes that promote organisational stability (Conventional SCDM) to intensive collective decision-making under conditions of heightened uncertainty (Onerous SCDM). While governance routines enhance consistency, they may also constrain adaptability when organisations encounter rapidly changing environments (Ebrahim, 2003; Renz and Herman, 2016).

Table 1: Empirically derived characteristics of the three types of strategic collective decision-making

Strategic collective decision-making characteristics			
Dimension	**Simple SCDM**	**Conventional SCDM**	**Onerous SCDM**
Typical context	Stable operating environment	Routine strategic governance	High uncertainty and organisational disruption
Contextual conditions	Manageable strategic challenges	Established governance routines	Funding crises, donor pressure, organisational risk
Level of uncertainty	Low	Moderate	High
Stakeholder involvement	Relevant internal stakeholders	Formal governance structures (Exco, Board)	Extensive internal and external stakeholder engagement
Decision process	Pragmatic and coordinated	Structured and routinised	Iterative, negotiated, and adaptive
Deliberative intensity	Low to moderate	Moderate	High
Governance complexity	Limited	Formalised	Multi-layered and recursive
Information ambiguity	Low	Moderate	High
Decision timeframe	Relatively short	Predictable and cyclical	Extended and iterative
Primary organisational outcome	Strategic operational responsiveness	Strategic organisational stability	Srategic organisational sustainability
Dominant characteristic	Pragmatic coordination	Procedural stability	Collective sensemaking under uncertainty

The findings further support scholarship emphasising the socially constructed nature of strategic decision-making (Weick, 1995). Funding uncertainty, donor pressures, stakeholder salience, and information ambiguity shaped the unfolding of collective strategic decision-making across participating NGOs. Rather than applying a single governance approach, organisations moved dynamically between the three decision-making types as contextual conditions changed, highlighting strategic collective decision-making as an adaptive capability that enables organisations to balance inclusivity, responsiveness, organisational sustainability, and mission alignment (Cristofaro, 2021; Bryson, Crosby and Barberg, 2023).

From a practical perspective, the findings suggest that effective strategic leadership depends less on rigid procedural governance than on the capacity to adapt collective decision-making processes to varying organisational conditions. NGO strategic leaders, boards, funders, and policymakers should therefore recognise that different strategic contexts require different forms of collective engagement if organisations are to remain resilient and mission-focused under conditions of uncertainty. The principal theoretical contribution of this study is the identification of an empirically derived typology demonstrating that strategic collective decision-making varies according to contextual conditions rather than following a single governance model.

5.1 Practical Implications

The study's findings have important practical implications for NGO leaders, boards, funders, and policymakers operating in resource-constrained, uncertain environments. The identification of Simple, Conventional, and Onerous strategic collective decision-making highlights that strategic decisions within health NGOs do not require uniform governance responses. Different contextual conditions require varying levels of consultation, deliberation, and collective engagement.

For NGO leadership teams, the findings emphasise the importance of adaptive leadership capabilities and contextual awareness in managing strategic collective decision-making processes. Leaders may need to balance procedural governance requirements with responsiveness, relational engagement, and organisational agility, particularly under conditions of heightened uncertainty and donor pressure.

The findings also suggest that governance structures should remain sufficiently flexible to accommodate varying levels of strategic complexity. Overly rigid governance processes may constrain responsiveness during periods of organisational instability, while insufficient consultation may undermine collective alignment and organisational legitimacy.

For donors and policymakers, the study highlights how funding uncertainty and compressed decision timelines can intensify organisational pressure and contribute to prolonged or onerous strategic decision-making processes. Greater recognition of the operational realities facing NGOs may support more sustainable and context-sensitive funding and governance approaches.

Ultimately, the study suggests that effective strategic collective decision-making within health NGOs depends not only on formal governance structures but also on organisations' capacity to adapt their collective strategic processes to changing organisational and environmental conditions.

5.2 Research Recommendations

Future research should further examine how the three types of strategic collective decision-making identified in this study manifest across different NGO sectors, governance environments, and national contexts. While this study focused specifically on South African health NGOs, similar contextual pressures relating to donor dependency, stakeholder complexity, and organisational uncertainty may also influence strategic collective decision-making within other mission-driven organisations operating in resource-constrained environments.

Comparative studies across different countries and NGO subsectors may provide deeper insight into how contextual, cultural, and institutional factors shape movement between Simple, Conventional, and Onerous strategic collective decision-making. Longitudinal research may further enhance understanding of how organisations transition between these types over time, particularly during periods of organisational crisis, leadership transition, funding instability, or significant policy change.

Future studies could also explore the role of organisational culture, psychological safety, leadership style, and governance maturity in shaping collective strategic processes. Additional research examining the relationship between donor influence and strategic organisational autonomy may further clarify how external accountability pressures affect collective decision-making within NGOs.

Finally, future grounded theory and qualitative studies may continue extending context-sensitive approaches to strategic decision-making by exploring how collective strategic processes unfold within increasingly volatile and uncertain organisational environments.

6. Conclusion

This paper examined strategic collective decision-making within South African health NGOs operating under conditions of resource constraint, donor pressure, and governance complexity. Drawing on findings from a broader Straussian grounded theory study, the paper identified three interrelated types of strategic collective decision-making: Simple, Conventional, and Onerous. The findings demonstrate that strategic collective decision-making within health NGOs is not a fixed or linear process, but a contextually contingent and negotiated organisational practice shaped by uncertainty, stakeholder pressures, governance dynamics, and organisational risk. Simple strategic collective decision-making reflects pragmatic coordination under manageable conditions. Conventional strategic collective decision-making highlights the stabilising role of routinised governance practices, while Onerous strategic collective decision-making emerges under conditions of heightened uncertainty requiring intensive deliberation and collective sensemaking.

The study contributes a context-sensitive understanding of strategic collective decision-making within mission-driven organisations and suggests that effective strategic leadership depends less on rigid procedural governance and more on the capacity to adapt collective strategic processes to changing organisational conditions. While the study focused on South African health NGOs, the findings may have broader relevance for mission-driven organisations operating in uncertain, resource-constrained environments. Ultimately, the paper argues that strategic collective decision-making within health NGOs is best understood as an adaptive and negotiated organisational process through which leadership teams balance inclusivity, responsiveness, organisational sustainability, and mission alignment under changing contextual conditions.

Ethics Declaration: This paper forms part of a broader doctoral study that received ethical clearance from Rhodes University prior to data collection (ethics approval number: 2024-8080-9127).

AI Declaration: Artificial Intelligence (AI) tools were used in a limited capacity during the preparation of this paper to assist with grammatical editing, language refinement, and readability.

References

Andrews, A. (2014), "Downward Accountability in Unequal Alliances: Explaining NGO Responses to Zapatista Demands", *World Development*, Vol. 54, pp. 99–113, doi: 10.1016/j.worlddev.2013.07.009.

Banks, N., Hulme, D. and Edwards, M. (2015), "NGOs, States, and Donors Revisited: Still Too Close for Comfort?", *World Development*, Vol. 66 No. 1, pp. 707–718, doi: 10.1016/j.worlddev.2014.09.028.

Bebbington, A. (2005), "Donor-NGO relations and representations of livelihood in nongovernmental aid ahains", *World Development*, Vol. 33 No. 6, pp. 937–950, doi: 10.1016/j.worlddev.2004.09.017.

Bryson, J.M., Crosby, B.C. and Barberg, B. (2023). Public value governance and strategic public management. Edward Elgar Publishing eBooks, pp.92–113. doi:https://doi.org/10.4337/9781789907193.00015.

Carmeli, A., Brueller, D. and Dutton, J.E. (2009), "Learning behaviours in the workplace: The role of high-quality interpersonal relationships and psychological safety", Systems Research and Behavioral Science, Vol. 26 No. 1, pp. 81–98, doi: 10.1002/sres.932.

Cristofaro, M. (2021). Organizational sensemaking: a systematic review and a co-evolutionary model. European Management Journal, 40(3). doi:https://doi.org/10.1016/j.emj.2021.07.003.

Ebrahim, A. (2003), "Accountability In Practice: Mechanisms for NGOs", World Development, Vol. 31 No. 5, pp. 813–829, doi: 10.1016/S0305-750X(03)00014-7.

Edwards, M. and Hulme, D. (1996), "Too close for comfort? the impact of official aid on nongovernmental organizations", *World Development, [Online*, Vol. 24 No. 6, pp. 961–973, doi: 10.1016/0305-750x(96)00019-8.

Eisenhardt, K.M. (1989). Making fast strategic decisions in high velocity environments. Academy of Management Journal, 32(3), pp.543–576. doi:https://doi.org/10.2307/256434.

Eisenhardt, K.M. and Zbaracki, M.J. (1992), "Strategic decision making", Strategic Management Journal, Vol. 13 No. S2, pp. 17–37.

Elbanna, S. and Child, J. (2007). The Influence of Decision, Environmental and Firm Characteristics on the Rationality of Strategic Decision-Making. Journal of Management Studies, 44(4), pp.561–591. doi:https://doi.org/10.1111/j.1467-6486.2006.00670.x.

Habib, A. (2013), "South Africa's Suspended Revolution", Ohio University Press, doi: 10.18772/12013086086.

Hailey, J. and James, R. (2004), "Trees Die From the Top': International Perspectives on NGO Leadership Development", *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, Vol. 15 No. 4, pp. 343–353, doi: 10.1007/s11266-004-1236-8.

Healey, M.P., Querbes, A. and Bleda, M. (2021). Costs of collective wisdom: How resources influence information aggregation in organizational decision making. Strategic Organization, p.147612702110038. doi:https://doi.org/10.1177/14761270211003849.

Kazanskaia, A.N. (2025). Organisational Practices for Enhancing Resilience in Non-Profits. NEYA Global Journal of Non-Profit Studies. doi:https://doi.org/10.64357/neya-gjnps-rslpsstrldtm-06.

Kruke, B.I. and Olsen, O.E. (2011), "Knowledge creation and reliable decision-making in complex emergencies", Disasters, Vol. 36 No. 2, pp. 212–232, doi: 10.1111/j.1467-7717.2011.01255.x.

Langley, A., Mintzberg, H., Pitcher, P., Posada, E. and Saint-Macary, J. (1995), "Opening up decision making: The view from the black stool", *Organization Science*, Vol. 6 No. 3, pp. 260–279.

Leach, D.K. (2016), "When Freedom Is Not an Endless Meeting: A New Look at Efficiency in Consensus-Based Decision Making", *The Sociological Quarterly*, Vol. 57 No. 1, pp. 36–70, doi: 10.1111/tsq.12137.

Lewis, D. (2009), "Non-Governmental Organizations and Development", doi: 10.4324/9780203877074.

Lewis, D., Kanji, N. and Themudo, N.S. (2020), "Non-Governmental Organizations and Development", *| Abingdon, Oxon*, Routledge, New York, NY, doi: 10.4324/9780429434518.

Md Isa, F., Noor, S., Nik Mohammad, N.M. and Mohd Adnan, M.M. (2021), "Leadership and decision making challenges among elderly care centre operators: case of multi-ethnic Malaysia", *Leadership in Health Services*, Vol. 34 No. 4, pp. 512–526, doi: 10.1108/lhs-05-2021-0033.

Noor, S., Isa, Fm. and Muhammad, N.M.N. (2021), "Managerial Obstacles Facing the Ageing Care Centres: A Case of Malaysian Women Entrepreneurs", *Vision: The Journal of Business Perspective*, Vol. 25 No. 3, pp. 312–321, doi: 10.1177/0972262921996495.

Renz, D.O. and Herman, R.D. (Eds.). (2016), *The Jossey-Bass Handbook of Nonprofit Leadership and Management*, John Wiley & Sons, Inc, Hoboken, NJ, USA, doi: 10.1002/9781119176558.

Sagie, A. and Aycan, Z. (2003), "A Cross-Cultural Analysis of Participative Decision-Making in Organizations", *Human Relations*, Vol. 56 No. 4, pp. 453–473, doi: 10.1177/0018726703056004003.

Schilirò, D. (2018), "Economic Decisions and Simon's Notion of Bounded Rationality", *International Business Research*, Vol. 11 No. 7, pp. 64–75, doi: 10.5539/ibr.v11n7p64.

Shepherd, N.G. and Rudd, J.M. (2014). The Influence of Context on the Strategic Decision-Making Process: A Review of the Literature. International Journal of Management Reviews, 16(3), pp.340–364. doi:https://doi.org/10.1111/ijmr.12023.

Simon, H. A. (1947). Administrative Behavior: A Study of Decision-Making Processes in Administrative Organization. New York: Macmillan.

Simon, H.A. (1997), *Administrative Behavior : A Study of Decision-Making Processes in Administrative Organizations*, Free Press, New York.

Singh, S., Martins, A. and Tefera, O. (2022). Nonprofit organisational resilience: Proposing a conceptual adaptive capacity framework. Acta Commercii, 22(1). doi:https://doi.org/10.4102/ac.v22i1.1077.

Strauss, A. and Corbin, J. (1990), *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*, Sage Publications, Newbury Park.

Strauss, A.L. and Corbin, J.M. (1998), *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 2nd ed., Sage, Thousand Oaks, CA.

Swilling, M. and Russell, B. (2002), *The Size and Scope of the Non-Profit Sector in South Africa*, Centre for Civil Society, University of Natal, Durban.

Weick, K. (1995), *Sensemaking in Organizations*, Sage Publications, Thousand Oaks, CA.

CEO Sustainability Narratives in the World's Best Workplaces: An Exploratory Gender-sensitive Content Analysis

Stefania Roberta Miccoli, Tamara Menichini and Nicoletta Maria Strollo
Department of Engineering, University of Rome Niccolò Cusano, Italy

stefaniaroberta.miccoli@unicusano.it
tamara.menichini@unicusano.it
nicolettamaria.strollo@unicusano.it

Abstract: Despite the growing institutionalization of Environmental, Social, Governance (ESG) frameworks and the proliferation of corporate sustainability reporting, relatively little is known about how CEOs narrate sustainability as a leadership construct, and even less about how gender may inflect that narrative. Existing scholarship has examined sustainability disclosure mainly through compliance, legitimacy, and stakeholder theory perspectives, overlooking the communicative dimension of CEO leadership: how executives rhetorically construct ESG meaning, which stakeholders they privilege, and what values they invoke to position sustainability within organisational purpose. The paper addresses this gap by examining how CEOs of globally recognised best workplaces construct sustainability as a leadership and governance narrative, using gender equality both as a substantive ESG dimension and as an interpretive lens for leadership communication. The empirical corpus comprises 24 CEO letters from the World's Best Workplaces 2024 dataset, analysed through inductive content analysis. Eight thematic clusters emerged: strategic sustainability integration; environmental transition and decarbonisation; people-centred organisational culture; stakeholder ecosystem and community impact; innovation, technology and artificial intelligence; governance, accountability and ESG credibility; purpose, values and ethical responsibility; and risk, resilience and external pressure. Sustainability is rarely framed as a compliance obligation: CEO messages consistently embed ESG within narratives of long-term value creation, organisational purpose, human capital development and systemic resilience. As a complementary line of inquiry, the study undertakes a close, case-based reading of the two female-authored letters against the male-authored corpus. The reading suggests that female-authored messages foreground relational stakeholder language, inclusion-oriented framing and shared-impact narratives, while male-authored messages more frequently emphasise scale, performance and technological transformation alongside shared social and purpose-oriented themes. The strong numerical asymmetry between female- and male-authored letters also reflects the persistent under-representation of women in CEO roles, even among organisations recognised as best workplaces. The paper offers an exploratory interpretive synthesis of CEO sustainability discourse and a preliminary, case-based framework for future research on gender and leadership voice in corporate ESG communication.

Keywords: CEO communication, Female leadership, Stakeholder accountability, ESG reporting, Gender equality, Content analysis

1. Introduction and Theoretical Background

Corporate sustainability communication has become a central arena through which organisations define strategic priorities, construct legitimacy and signal accountability to multiple stakeholders. Sustainability reporting increasingly operates as a governance-oriented practice through which firms explain how environmental, social and governance (ESG) issues are integrated into business models, stakeholder relationships and long-term value creation — a shift from compliance to strategic differentiation theorised through resource-based views, dynamic capabilities and shared value creation (Carroll and Shabana, 2010; Porter and Kramer, 2011; Teece, 2007). Within this reporting architecture, CEO messages occupy a distinctive position: they are not merely prefatory texts but compact leadership artefacts in which top executives frame which ESG priorities deserve attention, which stakeholders are recognised and how the organisation seeks to be perceived as a responsible actor. They function simultaneously as accountability statements, legitimacy claims and strategic signals — concise materiality narratives revealing how sustainability is selectively framed as environmental responsibility, social commitment, governance accountability, business opportunity or risk response (Adams, 2002; Merkl-Davies and Brennan, 2007; Sandberg and Holmlund, 2015; Aggerholm and Trapp, 2014; Horani, 2023).

Sustainability disclosure serves multiple co-existing functions: providing decision-relevant information, constructing organisational legitimacy and responding to institutional pressures (Brown and Fraser, 2006; Buhr et al, 2014; Guerrero-Baena et al, 2024). Materiality analysis adds a governance dimension: sustainability reports are curated narratives that reveal strategic priorities and accountability boundaries rather than neutral inventories (Beske et al, 2020; Calabrese et al, 2020; Manes-Rossi and Nicolò, 2022). Leadership is the critical organisational variable through which sustainability commitments are translated into action — a relational and cognitive process through which values are articulated, priorities are set and accountability is distributed.

Knowledge-oriented leadership is particularly relevant, supporting the creation and sharing of technical, social and regulatory knowledge that sustainability challenges demand (Donate and Sánchez de Pablo, 2015; Nonaka et al, 2000). Although sustainability reporting has been widely examined through stakeholder theory, legitimacy theory and impression-management perspectives, limited knowledge exists about how CEOs construct sustainability as a governance issue by integrating strategic priorities, stakeholder accountability, organisational values and people-centred culture within a coherent executive narrative.

A further gap concerns the gender-sensitive interpretation of CEO sustainability narratives. Gender equality is relevant not only as a disclosed ESG topic but also as an interpretive lens for examining leadership discourse: prior research suggests that gender diversity may influence leadership priorities, stakeholder orientation and the salience assigned to inclusion, care and social impact. Three theoretical perspectives guide this approach. Feminist institutionalism highlights that organisational practices may reproduce gendered assumptions even when formal rules appear neutral (Krook and Mackay, 2011). Care ethics directs attention to relational responsibility, interdependence and shared impact in leadership discourse (Noddings, 1984; Gilligan, 1993). Knowledge-governance perspectives suggest that gender diversity can broaden interpretive resources for identifying material sustainability issues and coordinating stakeholder knowledge (Nonaka et al, 2000; Le Loarne-Lemaire et al, 2021; Menichini et al, 2025; Ononye, 2025). However, gender differences cannot be assumed or generalised without appropriate empirical balance: the gender-sensitive perspective is therefore treated as exploratory, examining whether different narrative emphases emerge within the same inductively generated categories while recognising that the corpus includes only two female-authored CEO messages.

The empirical setting is the World's Best Workplaces 2024 ranking (Great Place to Work®). The selected organisations are publicly recognised as global workplace leaders, making their CEO messages a relevant corpus for examining how sustainability, employee experience, stakeholder responsibility and organisational credibility are connected in executive discourse. The study analyses 24 CEO messages from sustainability reports referring to fiscal year 2023. Through inductive content analysis, the paper identifies eight emergent thematic categories: strategic sustainability, environmental transition, people-centred culture, stakeholder ecosystem, innovation and AI, governance and accountability, purpose and values, and risk and resilience.

Accordingly, the study addresses three research questions:

RQ1. How do CEOs of globally recognised best workplaces construct and frame sustainability in their CEO messages?

RQ2. Which ESG-related themes and stakeholder orientations are most salient in these CEO messages?

RQ3. How do gender-sensitive narrative patterns emerge across the inductively generated thematic categories?

The paper contributes to management, leadership and governance research in three ways. First, it advances the study of CEO sustainability messages by treating them as leadership and governance texts that reveal how sustainability is strategically framed by top executives. Second, it provides an inductively generated thematic structure for analysing CEO sustainability narratives across eight categories. Third, it develops an exploratory gender-sensitive interpretive synthesis combining feminist institutionalism, care ethics and knowledge-governance perspectives. Given the limited number of female CEO messages in the corpus, the paper does not claim to demonstrate generalisable gender differences; instead, it offers a theoretically grounded and empirically exploratory basis for future research on how gender-sensitive leadership meanings may emerge in CEO sustainability narratives.

2. Methodology

The empirical material comprises CEO messages from sustainability reports of companies included in the World's Best Workplaces 2024 ranking published by Great Place to Work®. The unit of analysis was the CEO message included in each company's sustainability report referring to fiscal year 2023. The ranking was based on surveys of 7.4 million employees worldwide; to be considered for inclusion, companies had to appear on at least five national Best Workplaces lists, have at least 5,000 employees worldwide, and meet the ranking's international workforce distribution criterion. Of 25 companies in the original dataset, one was excluded because the CEO message was absent. The final corpus comprises 24 CEO messages: 22 attributed to male CEOs (91.7%) and 2 to female CEOs (8.3%). The sample is geographically concentrated in the United States (14 companies; 58.3%), followed by Germany (4; 16.7%), Ireland and the United Kingdom (2 each; 8.3% each), and France and Italy (1 each; 4.2%). It spans several sectors including information technology, professional services, health care, pharmaceuticals, hospitality, financial services, manufacturing and retail.

The study employs inductive content analysis to identify emergent meanings within CEO messages published in sustainability reports. This approach fits the data well: CEO messages are short but dense texts that pack together strategic priorities, references to stakeholders, ESG claims and leadership values. Inductive content analysis is suited to this kind of material because it builds meaning directly from close reading, moving from meaning units to open codes and then to broader content categories (Elo and Kyngäs, 2008; Hsieh and Shannon, 2005; Vears and Gillam, 2022; Guerrero-Baena et al, 2024).

The primary coding unit was the sentence. When a sentence contained more than one relevant meaning, it was analytically split into distinct meaning units. A meaning unit could receive more than one code when it combined different sustainability logics, such as strategic value, stakeholder accountability and environmental transition. Codes were therefore not treated as mutually exclusive because CEO messages often integrate several ESG dimensions within the same sentence. Following inductive content analysis logic, the coding process proceeded through four iterative stages: decontextualisation (reading the corpus to identify relevant meaning units without pre-existing categories); recontextualisation (comparing coded material with original messages to avoid decontextualised interpretation); categorisation (assigning open codes inductively, then comparing, merging and grouping codes into higher-order categories); and compilation (relating categories to research questions and interpreting findings in relation to the literature). The analysis remains qualitative, with frequency counts used only to document thematic presence across the corpus (Mayring, 2004; O'Connor and Joffe, 2020). To strengthen analytical rigour, earlier CEO messages were revisited after new codes emerged; category boundaries were progressively clarified through analytic definitions; and ambiguous passages were checked against original messages to preserve contextual meaning. These procedures provided an audit trail supporting the internal consistency of the inductive category-building process (Rourke and Anderson, 2004).

3. Findings

The inductive content analysis generated eight thematic categories. Table 1 reports the presence of each theme across the 24 CEO messages. Frequencies indicate whether a theme appears in a message, not the number of occurrences within a message. Because CEO messages vary substantially in length, thematic presence is interpreted alongside qualitative emphasis rather than treated as a statistical measure of importance.

Table 1: Thematic matrix generated by inductive content analysis

Emergent thematic category (ETC)	Key concepts	Frequency, n (%)	Interpretive meaning	Prevalent ESG dimension
ETC1 Strategic sustainability	growth; long-term value; competitive advantage; business-model integration; customer value; resilience; future competitiveness	23/24 (95.8%)	Near-universal. Sustainability is predominantly narrated as embedded in strategy, value creation and long-term business resilience rather than as a peripheral compliance issue.	G
ETC2 Environmental transition	net zero; emissions reduction; renewable energy; circularity; climate transition; sustainable sourcing; resource efficiency	22/24 (91.7%)	High. Environmental sustainability is usually operationalized through targets, transition plans, products, sourcing decisions and resource-efficiency initiatives.	E
ETC3 People-centred culture	employees; training; talent; wellbeing; diversity; inclusion; engagement; workplace recognition; people-first culture	23/24 (95.8%)	Near-universal. Employees and workplace culture are framed as central to sustainability, organisational capability and ESG credibility.	S
ETC4 Stakeholder ecosystem	customers; communities; partners; suppliers; patients; guests; shareholders; society; NGOs; planet	23/24 (95.8%)	Near-universal. CEO messages construct sustainability through a broad stakeholder map, linking corporate responsibility to multiple internal and external constituencies.	S
ETC5 Innovation and AI	AI; digitalisation; data; cloud; R&D; product innovation; responsible technology; technology-enabled solutions	18/24 (75.0%)	Strong but sector-sensitive. Innovation and technology are frequently framed as enablers of sustainability transformation, especially in technology, professional services and pharmaceutical companies.	G

Emergent thematic category (ETC)	Key concepts	Frequency, n (%)	Interpretive meaning	Prevalent ESG dimension
ETC6 Governance and accountability	ESG reporting; standards; targets; audits; ratings; transparency; assurance; integrity; science-based targets	18/24 (75.0%)	Moderate to strong. Governance language functions as a credibility device, anchoring broad sustainability claims in targets, standards, transparency and accountability mechanisms.	G
ETC7 Purpose and values	purpose; mission; responsibility; trust; care; values; commitment; legacy; force for good	24/24 (100.0%)	Universal. Purpose and values provide the moral grammar through which CEOs connect sustainability to organisational identity, ethical responsibility and long-term societal contribution.	G
ETC8 Risk and resilience	climate risk; natural disasters; geopolitical volatility; regulation; macroeconomic pressure; technology disruption; adaptive capacity	14/24 (58.3%)	Selective but analytically relevant. Sustainability is framed as a response to external volatility, risk exposure and disruption, but also as a basis for resilience and long-term transformation.	G

Note: Frequencies indicate whether each category appears in a CEO message, not the number of occurrences within each message. Percentages are reported as descriptive indicators of thematic presence across the corpus and are not used for statistical inference. The ESG dimension indicates the prevalent ESG orientation of each thematic category and should not be interpreted as mutually exclusive, since CEO sustainability narratives often combine environmental, social and governance meanings within the same statement. E = Environmental; S = Social; G = Governance.

Strategic sustainability (ETC1) appeared in 23 of the 24 CEO messages (95.8%), indicating that sustainability is almost universally framed as part of the business model rather than as a peripheral philanthropic or compliance-oriented activity. Environmental transition (ETC2) appeared in 22 of the 24 CEO messages (91.7%), confirming that the environmental dimension is highly recurrent; it is typically articulated through climate action, emissions reduction, circularity, renewable energy, sustainable sourcing and resource efficiency. People-centred culture (ETC3) appeared in 23 of the 24 CEO messages (95.8%), which is expected given the World's Best Workplaces context but remains analytically central. Employees are presented as agents, beneficiaries and proof points of sustainability. Inclusion and people-centred culture should be interpreted not merely as human-resource topics but as governance issues: when CEOs frame people as central to sustainability, they implicitly define organisational culture and social responsibility as part of ESG performance (Noddings, 1984; Gilligan, 1993; Menichini et al, 2025). Stakeholder ecosystem (ETC4) appeared in 23 of the 24 CEO messages (95.8%). CEO messages rarely address a single audience; they build a stakeholder ecosystem in which corporate responsibility is linked to multiple internal and external constituencies. The analytical distinction lies between instrumental stakeholder references and relational narratives based on mutual commitment, shared impact and accountability (Beske et al, 2020; Guerrero-Baena et al, 2024). Innovation and AI (ETC5) captures passages in which technology, digitalisation, data, cloud infrastructure, R&D, artificial intelligence or product innovation are framed as enablers of sustainability transformation. Innovation and AI appeared in 18 of the 24 CEO messages (75.0%), making it a strong but less universal theme. It is particularly salient among technology, pharmaceutical and professional-service firms. A governance-oriented interpretation should ask whether AI and innovation are framed only as drivers of efficiency and scale, or also as tools connected to responsible use, employee capability, inclusive access and stakeholder benefit (De Silva et al, 2025; de Villiers et al, 2024; Li et al, 2024; Menichini et al, 2024a; 2024b; Ononye, 2025). Governance and accountability (ETC6) appeared in 18 of the 24 CEO messages (75.0%). Governance language functions as a credibility mechanism: CEOs translate broad sustainability claims into verifiable commitments through reporting standards, targets, audits, ratings, assurance and transparency. The analysis should distinguish between general credibility cues and concrete mechanisms such as externally validated targets, audited information and board-level responsibility (Merkl-Davies and Brennan, 2007; Sandberg and Holmlund, 2015). Purpose and values (ETC7) appeared in all 24 CEO messages (100.0%), making it the only universal category in the corpus. Purpose operates as the moral grammar of sustainability leadership, connecting environmental, social, governance and strategic themes into a coherent identity narrative. Its analytical value depends on whether broad value claims are anchored in evidence, stakeholder outcomes and governance mechanisms (Sandberg and Holmlund, 2015). Risk and resilience (ETC8) appeared in 14 of the 24 CEO messages (58.3%), making it the least frequent category but still analytically relevant. The resilience

repertoire can be defensive (sustainability as risk control) or proactive (sustainability as adaptive capacity and long-term transformation), linking CEO discourse to how organisations interpret and coordinate action under uncertainty (Nonaka et al, 2000; Meijerink and Stiller, 2013).

4. Gender-sensitive Patterns in CEO Sustainability Narratives

The gender-sensitive comparison examines narrative emphases within the same eight inductively generated categories. It does not introduce gender-specific categories but asks whether male- and female-authored CEO messages display different narrative saliences within the same category structure. The analytical choice is consistent with the exploratory nature of the study and with the use of gender equality as a cross-cutting interpretive lens. The comparison must be interpreted cautiously: only two CEO messages are authored by women. The analysis therefore does not claim statistical generalisability. Its value is exploratory, identifying possible patterns of narrative salience that can guide larger and more gender-balanced future studies.

Table 2: Exploratory gender-sensitive comparison across the same eight inductively generated categories

Emergent thematic category (ETC)	Male CEOs, n = 22 (%); Female CEOs, n = 2 (%)	Guiding gender-sensitive interpretive criterion	Theoretical anchor	Exploratory gender-sensitive interpretation
ETC1 Strategic sustainability	21/22 (95.5%); 2/2 (100.0%)	Strategic framing through scale, performance and competitiveness versus inclusive value creation, shared outcomes and collective impact.	Noddings, 1984; Gilligan, 1993; Krook and Mackay, 2011.	Strategic sustainability is highly salient in both groups. Male-authored messages more frequently connect sustainability to scale, growth, performance, competitiveness and long-term value creation. The two female-authored messages also frame sustainability strategically, but with comparatively stronger emphasis on shared outcomes, stakeholder value and collective impact.
ETC2 Environmental transition	20/22 (90.9%); 2/2 (100.0%)	Environmental transition framed as operational performance versus stakeholder responsibility, interdependence and socially embedded environmental concern.	Noddings, 1984; Gilligan, 1993; Le Loarne-Lemaire et al, 2021.	Environmental transition is present in both groups and should not be interpreted as a clearly gendered theme. Both male- and female-authored messages refer to climate, emissions, transition or resource-related issues. The exploratory difference concerns framing rather than presence: environmental transition is sometimes linked to operational performance and technological transformation, and sometimes to stakeholder responsibility and resilience.
ETC3 People-centred culture	21/22 (95.5%); 2/2 (100.0%)	Inclusion, wellbeing, employee voice, care-oriented responsibility and people-centred organisational capability.	Noddings, 1984; Gilligan, 1993; Krook and Mackay, 2011.	People-centred culture is highly salient across the corpus. Male-authored messages commonly refer to talent, engagement, skills, workplace recognition and organisational capability. The two female-authored messages show comparatively stronger salience of inclusion, wellbeing, care-oriented responsibility and people-first language. This difference should be interpreted as narrative emphasis within the same category, not as a separate gender-specific category.

Emergent thematic category (ETC)	Male CEOs, n = 22 (%); Female CEOs, n = 2 (%)	Guiding gender-sensitive interpretive criterion	Theoretical anchor	Exploratory gender-sensitive interpretation
ETC4 Stakeholder ecosystem	21/22 (95.5%); 2/2 (100.0%)	Relational stakeholder orientation, interdependence, shared responsibility and stakeholder accountability.	Noddings, 1984; Gilligan, 1993; Krook and Mackay, 2011.	Stakeholder references are widespread in both groups. Male-authored messages often connect stakeholders to business ecosystems, customers, partners, shareholders, communities and market positioning. The two female-authored messages display comparatively stronger relational stakeholder language, with more explicit emphasis on communities, colleagues, customers, suppliers, partners and shared responsibility.
ETC5 Innovation and AI	17/22 (77.3%); 1/2 (50.0%)	Responsible innovation, inclusive access, employee capability and knowledge governance, rather than innovation framed only through scale, efficiency and technological transformation.	Nonaka et al, 2000; Krook and Mackay, 2011; Le Loarne-Lemaire et al, 2021; Ononye, 2025.	Innovation and AI are more frequent in male-authored messages. This pattern should be interpreted cautiously because it may reflect sectoral composition rather than CEO gender. Male-authored messages more often link sustainability to technology, AI, digitalisation, R&D, data and transformation at scale. In the female-authored messages, innovation is less frequent and appears more selectively connected to stakeholder benefit or responsible transformation.
ETC6 Governance and accountability	16/22 (72.7%); 2/2 (100.0%)	Accountability anchoring of inclusion, diversity and sustainability claims, distinguishing substantive commitments from declarative claims.	Merkl-Davies and Brennan, 2007; Krook and Mackay, 2011; Sandberg and Holmlund, 2015.	Governance and accountability appear in both groups. Male-authored messages refer to standards, targets, transparency, assurance, integrity and ESG credibility with varying levels of specificity. Both female-authored messages include accountability mechanisms; however, given the very small female subsample, this result should be treated only as an exploratory indication of narrative salience and not as evidence of a general gender pattern.
ETC7 Purpose and values	22/22 (100.0%); 2/2 (100.0%)	Care, fairness, ethical responsibility, inclusion, shared impact and value-based stakeholder commitment.	Noddings, 1984; Gilligan, 1993; Krook and Mackay, 2011.	Purpose and values are universal across the corpus. The gender-sensitive distinction concerns tone and emphasis rather than thematic presence. Male-authored messages often connect purpose to organisational identity, performance, leadership credibility and long-term value. The two female-authored messages give comparatively stronger salience to care, ethical responsibility, inclusion, shared impact and value-based stakeholder commitment.
ETC8 Risk and resilience	13/22 (59.1%); 1/2 (50.0%)	Resilience framed as risk protection and business continuity versus shared adaptive responsibility, vulnerability and interdependence.	Noddings, 1984; Gilligan, 1993; Nonaka et al, 2000; Krook and Mackay, 2011.	Risk and resilience are less pervasive than the other categories and appear selectively in both groups. Male-authored messages more often connect resilience to volatility, regulation, climate risk, technology disruption, macroeconomic uncertainty or business continuity. The female-authored messages provide limited evidence for gender-sensitive interpretation in this category. The pattern is more plausibly related to sector, external exposure and organisational context than to CEO gender.

Note: Percentages are reported as descriptive indicators of thematic presence within male- and female-authored CEO messages. Because the female CEO subsample consists of only two messages, the gender-

sensitive comparison is interpreted qualitatively and exploratorily. The guiding gender-sensitive interpretive criteria specify the theoretical rationale used to assess narrative salience within each category, drawing on feminist institutionalism, care ethics, stakeholder theory, knowledge-governance perspectives and governance-oriented ESG literature. These criteria do not imply causal or statistically generalisable gender differences. The table does not introduce separate gender-specific categories but examines narrative salience within the same eight ETCs.

The exploratory gender-sensitive comparison can be read through four interpretive logics already emerging from the category-level analysis: strategic integration (sustainability connected to business-model integration and resilience); moral legitimacy (sustainability linked to purpose, care, fairness and shared impact); stakeholder accountability (sustainability narrated through responsibility relationships with multiple constituencies); and transformational innovation (technology and AI framed as enablers of sustainability transformation). These logics provide a synthetic reading of how the same categories can be interpreted after the gender-sensitive comparison. The four logics do not constitute an additional coding framework and do not replace the eight inductively generated categories. Given the small female CEO subsample, this synthesis should be understood as an exploratory analytical lens for future research.

5. Conclusions

The study set out to explore how sustainability is narrated in CEO messages from the World's Best Workplaces corpus and what these narratives may reveal about executive ESG prioritisation. The findings suggest that sustainability is framed predominantly as a strategic and governance-related issue, closely linked to long-term value creation, organisational culture, purpose, resilience and stakeholder responsibility. Across the corpus, purpose and values emerged as the only universal category, while strategic sustainability integration, people-centred culture and stakeholder ecosystem were also among the most recurrent themes. Governance, accountability and ESG credibility appeared less consistently, indicating that CEO communication tends to emphasise strategic alignment, organisational values, stakeholder responsibility and culture more than formal accountability mechanisms. Sustainability was also rarely presented in compliance-oriented terms; even when risk and resilience were invoked, they were generally framed as dimensions of adaptation and long-term competitiveness rather than as responses to external pressure.

Read in this way, CEO messages appear to function not merely as introductory texts to sustainability reporting, but as narrative spaces in which executives make visible their priorities, values and interpretations of material ESG issues. On this basis, the study contributes to the literature by suggesting that CEO letters can be read as informal materiality narratives, extending materiality analysis beyond formal disclosure processes to include leadership communication (Brown and Fraser, 2006; Buhr et al, 2014; Beske et al, 2020; Menichini et al, 2026). It also offers an inductively developed thematic framework that may support future research on sustainability narratives in corporate settings.

While exploratory and based on a limited number of cases, the proposed comparative reading suggests a difference in narrative emphasis: female-authored letters give greater prominence to relational stakeholder language, inclusion and shared impact, whereas male-authored letters more often foreground scale, performance and technological transformation (Noddings, 1984; Gilligan, 1993; Krook and Mackay, 2011; Le Loarne-Lemaire et al, 2021). Given the exploratory design of the study, the findings are best read as an initial interpretive contribution to understanding how sustainability is constructed in CEO narratives.

Future research could build on these insights by examining larger and more diverse samples across years, sectors and geographical contexts, and by combining qualitative interpretation with computational text analysis and ESG-related organisational indicators to better understand how leadership narratives relate to broader sustainability reporting and governance practices (Mayring, 2004; O'Connor and Joffe, 2020).

Ethics Declaration: Ethical clearance was not required for the research.

AI Declaration: Artificial Intelligence tools were used to improve the grammar and enhance the fluency of the text.

References

Adams, C.A. (2002) "Internal organisational factors influencing corporate social and ethical reporting", Accounting, Auditing & Accountability Journal, 15(2), pp. 223–250.

Aggerholm, H.K. and Trapp, N.L. (2014) "Three tiers of CSR: an instructive means of understanding and guiding contemporary company approaches to CSR?", Business Ethics: A European Review, 23(3), pp. 235–247.

Beske, F., Haustein, E. and Lorson, P.C. (2020) "Materiality analysis in sustainability and integrated reports", Sustainability Accounting, Management and Policy Journal, 11(1), pp. 162–186.
Brown, J. and Fraser, M. (2006) "Approaches and perspectives in social and environmental accounting: an overview of the conceptual landscape", Business Strategy and the Environment, 15(2), pp. 103–117.
Buhr, N., Gray, R. and Milne, M.J. (2014) "Histories, rationales, voluntary standards and future prospects for sustainability reporting: CSR, GRI, IIRC and beyond", in Bebbington, J., Unerman, J. and O'Dwyer, B. (eds.) Sustainability Accounting and Accountability. 2nd edn. London: Routledge, pp. 51–71.
Calabrese, A., Costa, R., Levialdi, N., Menichini, T. and Villazon Montalvan, R.A. (2020) "Does more mean better? Exploring the relationship between report completeness and environmental sustainability", Sustainability, 12(24), p. 10635.
Carroll, A.B. and Shabana, K.M. (2010) "The business case for corporate social responsibility: a review of concepts, research and practice", International Journal of Management Reviews, 12(1), pp. 85–105.
De Silva, P., Gunarathne, N. and Kumar, S. (2025) "Exploring the impact of digital knowledge, integration and performance on sustainable accounting, reporting and assurance", Meditari Accountancy Research, 33(2), pp. 497–552.
de Villiers, C., Dimes, R. and Molinari, M. (2024) "How will AI text generation and processing impact sustainability reporting?", Sustainability Accounting, Management and Policy Journal, 15(1), pp. 96–118.
Donate, M.J. and Sánchez de Pablo, J.D. (2015) "The role of knowledge-oriented leadership in knowledge management practices and innovation", Journal of Business Research, 68(2), pp. 360–370.
Elo, S. and Kyngäs, H. (2008) "The qualitative content analysis process", Journal of Advanced Nursing, 62(1), pp. 107–115.
Gilligan, C. (1993) In a "Different Voice: Psychological Theory and Women's Development". Cambridge, MA: Harvard University Press.
Guerrero-Baena, M.D., Castilla-Polo, F. and Rodríguez-Gutiérrez, P. (2024) "Motivations for social and environmental reporting in Spanish SMEs: an inductive content analysis", Business Strategy and the Environment, 33(5), pp. 4130–4144.
Horani, L.F. (2023) "Sustainable design concepts and their definitions: an inductive content-analysis-based literature review", Technological Sustainability, 2(3), pp. 225–243.
Hsieh, H.-F. and Shannon, S.E. (2005) "Three approaches to qualitative content analysis", Qualitative Health Research, 15(9), pp. 1277–1288.
Krook, M.L. and Mackay, F. (eds.) (2011) "Gender, Politics and Institutions: Towards a Feminist Institutionalism", Vol. 1. Basingstoke: Palgrave Macmillan.
Le Loarne-Lemaire, S., Bertrand, G., Razgallah, M., Maalaoui, A. and Kallmuenzer, A. (2021) "Women in innovation processes as a solution to climate change: a systematic literature review and an agenda for future research", Technological Forecasting and Social Change, 164, p. 120440.
Li, N., Kim, M., Dai, J. and Vasarhelyi, M.A. (2024) "Using artificial intelligence in ESG assurance", Journal of Emerging Technologies in Accounting, 21(2), pp. 83–99.
Manes-Rossi, F. and Nicolò, G. (2022) "Exploring sustainable development goals reporting practices: from symbolic to substantive approaches – evidence from the energy sector", Corporate Social Responsibility and Environmental Management, 29(5), pp. 1799–1815.
Mayring, P. (2004) "Qualitative content analysis", in Flick, U., von Kardorff, E. and Steinke, I. (eds.) A Companion to Qualitative Research. London: SAGE Publications, pp. 266–269.
Meijerink, S. and Stiller, S. (2013) "What kind of leadership do we need for climate adaptation?", Environment and Planning C: Government and Policy, 31, pp. 240–256.
Menichini, T., Miccoli, S.R. and Salierno, G. (2025) "From words to action: measuring corporate commitment to gender equality through sustainability reporting", European Journal of Sustainable Development, 14(3), pp. 183–198.
Menichini, T., Salierno, G., and Strollo, N. M. (2024a, November) "Digital transformation in the agri-food sector: A comparative analysis of Industry 4.0 innovations by Italian sustainability leaders", in Proceedings of the 20th European Conference on Management, Leadership and Governance, Lisbon, Portugal, pp. 14–15.
Menichini, T., and Strollo, N. M. (2024b) "An Evaluation Framework of Industry 4.0's Impact on SDGs and its Application to Al Reporting" in Proceedings of the 19th European Conference on Management, Leadership and Governance. Academic Conferences International.
Menichini, T., Salierno, G., and Strollo, N. M. (2026) "Exploring the role of materiality analysis in corporate decision-making for SDG prioritization: A systematic literature review", International Entrepreneurship and Management Journal, 22(2), 67.
Merkl-Davies, D.M. and Brennan, N.M. (2007) "Discretionary disclosure strategies in corporate narratives: incremental information or impression management?", Journal of Accounting Literature, 26, pp. 116–196.
Noddings, N. (1984) "Caring: A Feminine Approach to Ethics and Moral Education". Berkeley, CA: University of California Press.
Nonaka, I., Toyama, R. and Konno, N. (2000) "SECI, Ba and leadership: a unified model of dynamic knowledge creation", Long Range Planning, 33(1), pp. 5–34.
O'Connor, C. and Joffe, H. (2020) "Intercoder reliability in qualitative research: debates and practical guidelines", International Journal of Qualitative Methods, 19, p. 1609406919899220.
Ononye, U.H. (2025) "Knowledge-oriented leadership and change management: examining the roles of knowledge management behaviours and innovation culture", Management Research and Practice, 17(4), pp. 53–65.
Porter, M.E. and Kramer, M.R. (2011) "Creating shared value", Harvard Business Review, 89(1–2), pp. 62–77.

Rourke, L. and Anderson, T. (2004) “Validity in quantitative content analysis”, Educational Technology Research and Development, 52(1), pp. 5–18.

Sandberg, M. and Holmlund, M. (2015) “Impression management tactics in sustainability reporting”, Social Responsibility Journal, 11(4), pp. 677–689.

Teece, D.J. (2007) “Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance”, Strategic Management Journal, 28(13), pp. 1319–1350.

Vears, D.F. and Gillam, L. (2022) “Inductive content analysis: a guide for beginning qualitative researchers”, Focus on Health Professional Education, 23(1), pp. 111–127.

Gender Diversity, Structural Characteristics and Performance of Listed Companies in Transition Economies

Suzi Mikulić
University of Mostar, Bosnia and Herzegovina

suzi.mikulic@gmail.com

Abstract: This paper examines the impact of gender diversity on management boards and the structural characteristics of companies on profitability (ROA), size (measured by total assets and number of employees), and market valuation (P/E ratio) of listed companies in the transitional context of Bosnia and Herzegovina. The empirical analysis includes a sample of 70 companies from four industry sectors: manufacturing, trade, construction, and transport, listed on the Sarajevo Stock Exchange during the period 2023-2025, forming a panel structure of 210 observations. Data were analysed using multiple OLS regression models. Gender diversity was measured by a binary variable indicating the presence of women on management boards, while structural characteristics of companies included ownership structure, industry sector, and the time dimension of the observed period. The results indicate that gender diversity does not have a robust and statistically significant impact on profitability (ROA) or on the size of companies measured by total assets. However, a positive and statistically significant correlation with the number of employees was found, suggesting that gender diversity may be related to the organisational and not necessarily the financial dimensions of the business. Regarding market valuation, the initial results indicate a correlation between gender diversity and the P/E ratio, but this relationship loses statistical significance in multivariate models, after including control variables, indicating a lack of robustness. In contrast, structural characteristics, especially the industrial sector, show a consistent and significant impact on all observed indicators, while the ownership structure significantly affects the number of employees and market valuation, but not profitability or asset size. The time dimension is not statistically significant in any of the models, indicating stability over the observed period. The findings suggest that the relationship between gender diversity and company performance is complex and contextually conditioned, without a universal pattern of influence. This paper contributes to the literature on corporate governance by providing empirical insights from an under explored transitional context and emphasizes the importance of incorporating structural and institutional factors into the analysis of gender diversity impacts.

Keywords: Gender diversity, Corporate governance, Company performance, Transition economies, Listed companies

1. Introduction

Gender diversity and increased representation of women on management boards, both across different areas of society and within corporate governance structures, have become important issue in academic literature, regulatory frameworks, and business practice over the past two decades. Particular attention is given to the role of gender diversity in enhancing the quality of corporate governance, the transparency of decision-making processes, and the efficiency of supervisory and management functions.

In the context of corporate governance, which is the subject of this paper, gender diversity should be seen as an important aspect of corporate governance, as the composition of management boards can influence the quality of decision-making, the effectiveness of supervision, risk management, and the protection of the interests of various stakeholders. Increasing attention is being paid to who participates in the strategic decision-making process, what knowledge and experience they bring, and how such composition affects business outcomes.

Gender diversity in governing bodies has therefore become a topic that attracts the attention of regulators, investors, and academia. The issue of women's representation in management structures is considered within normative frameworks of equality and inclusion, as well as through managerial and economic arguments that highlight the potential benefits of diversity for decision-making quality and supervisory effectiveness. This approach is supported by international regulatory and normative frameworks, including the OECD Principles of Corporate Governance (Organisation for Economic Co-operation and Development, 2023) and Directive (EU) 2022/2381 (European Parliament and Council of the European Union, 2022), which link management board diversity to higher transparency, board independence, and overall corporate governance quality. The OECD emphasises the need for transparent appointment policies that consider candidates' expertise, experience, and gender equality, as well as the importance of disclosing data on the composition of governing bodies to strengthen accountability and monitor progress. In this context, diversity is viewed not only as an equal opportunities issue, but also as part of a broader concept of effective and responsible corporate governance.

However, despite growing interest in this topic, empirical research to date does not provide clear answers about the existence or nature of the link between the gender diversity of management boards and company business performance. Research results vary depending on the methodologies used, the institutional and regulatory

environment, the performance indicators observed, and the method of measuring gender diversity. Most available research focuses on developed market economies, while transition economies, especially those in the Western Balkans, remain insufficiently studied. Bosnia and Herzegovina (BiH) presents a specific context, with an underdeveloped capital market, predominantly domestic ownership of listed companies, and pronounced sectoral differences in company structure and performance. In such an environment, it is uncertain whether patterns established in other market economies can be applied in the same way. This paper aims to address the identified gap in the literature by analysing a sample of 70 companies listed on the Sarajevo Stock Exchange (SASE) over the three-year period from 2023 to 2025.

This paper examines the extent to which gender diversity on boards, as a dimension of corporate governance, influences the business performance of companies listed on SASE. Business performance is assessed using two complementary indicators: return on assets (ROA), a standard accounting measure of profitability, and the price-earnings ratio (P/E), a market valuation indicator particularly relevant for listed companies. In addition, company size is examined through two separate measures, total asset value and the number of employees. Alongside gender diversity in management boards, the paper analyses the role of structural characteristics, the industrial sector in which companies operate, and ownership structures as potentially significant determinants of business performance. Accordingly, this study addresses the following research questions:

RQ1: What is the impact of the presence of women on boards of directors on the profitability, market valuation, and size of listed companies?

RQ2: To what extent do the industrial sector and ownership structure account for differences in profitability, market valuation, and size among companies?

RQ3: Does gender diversity have an independent effect on the market valuation of a company, or does this effect disappear when the structural characteristics of the company are considered?

The paper proceeds with a review of the relevant literature, research methodology, empirical data analysis, and discussion of the results, including recommendations for future research.

2. Literature Review

Understanding the role of gender diversity in corporate governance can be grounded in several theoretical approaches developed since the second half of the 20th century. Contingency theory (Burns & Stalker, 1961; Lawrence & Lorsch, 1967) suggests that larger and more complex organisations naturally develop more formalised management practices, and thus a more systematic approach to diversity management. Resource dependence theory (Pfeffer & Salancik, 1978) assumes that organisations depend on external sources of resources and legitimacy, so the adoption of practices such as gender diversity in governing bodies may be a response to the expectations of key stakeholders and regulatory actors. Institutional theory (DiMaggio & Powell, 1983) explains a similar pattern through the normative and regulatory expectations to which organisations are exposed. Recent research and review literature confirm that these theoretical frameworks remain relevant in the contemporary context of corporate governance (Kirsch, 2018; Baker et al., 2020).

Previous research on the relationship between gender diversity and financial performance does not provide a clear answer. Post and Byron (2015), in an extensive meta-analysis, found a generally positive relationship between the representation of women on boards and accounting performance indicators, such as ROA and ROE, while the relationship with market indicators was weaker and strongly dependent on the institutional context, with positive effects more pronounced in countries with higher levels of gender equality. Similar findings are reported by studies in developed and individual transition markets, which generally find a positive but contextually conditioned correlation between gender diversity on boards and financial performance (Isidro and Sobral, 2015; Nguyen et al., 2015; Bennouri et al., 2018).

However, the empirical findings are inconsistent. Some studies identify positive effects, while others find no statistically significant associations. Pletzer et al. (2015) highlight the significant heterogeneity of the results, whereas Marinova et al. (2016) do not find a statistically significant correlation in the European context. Gordini and Rancati (2017) indicate that the results can be sensitive to the choice of diversity measures, performance indicators, and the specification of the empirical model while Dang et al. (2021) find that women influence performance exclusively indirectly, through the interaction of gender diversity with internal factors such as company size and structure which confirms the complex and context dependent nature of financial outcomes. Simionescu et al. (2021) find that a higher representation of women on boards of directors generally has a positive effect on business performance, particularly on market performance indicators (the P/E ratio) but when

it comes to ROA, the results are not statistically significant, except in some cases when the proportion of female executive directors is examined. Similarly, Sanan (2023), in a systematic review of studies from emerging economies, concludes that the relationship between board gender diversity and company performance is mixed, with positive, negative, and insignificant effects reported across studies. The review further highlights the heterogeneity of findings across contexts, research designs, and theoretical approaches.

The literature indicates that the effects of gender diversity are neither direct nor universal, but are mediated by institutional and organisational factors, including internal processes such as the quality of decision-making, communication, and cohesion within the board (Williams and O'Reilly, 1998; Kirsch, 2018). In this context, Torchia and Calabrò (2022) note that the relationship between board gender diversity and innovation outcomes is influenced by various organisational and contextual factors, with the impact becoming more significant only when women reach the so-called critical mass on the board.

The structural characteristics of the company, the industrial sector, and the ownership structure are also recognised in the literature as important determinants of business performance. The theory of economies of scale suggests that larger companies achieve better financial results due to lower unit costs, while the eclectic paradigm (Dunning, 1988) explains the superiority of foreign owned companies by better management practices and easier access to capital. Recent research confirms that the industrial context and company heterogeneity significantly infuence differences in business financial results, while ownership structure can affect the quality of management and business performance (Hoskisson et al., 2020; Sanan et al., 2019). Džidić and Orsag (2021), using empirical evidence from BiH, find that ownership concentration and institutional ownership are positively associated with company value (Tobin’s Q), while state ownership is associated with lower profitability and weaker overall company performance.

Overall, the theoretical and empirical literature indicates that gender diversity is not a direct determinant of financial performance, but a structural and institutionally conditioned characteristic of an organisation whose effects depend on the broader context in which the company operates. This contextual conditionality makes transition economies a particularly interesting area of research.

3. Research Methodology and Sample Description

The research was conducted on a panel data sample over the three-year period from 2023 to 2025. The sample includes 70 companies listed on SASE, classified into Subsegments 1 and 2, across four sectors: manufacturing (43 companies), trade (13 companies), construction (8 companies), and transport and logistics (6 companies). The total number of observation units is 210, with each company observed over three years. The sample was defined based on data availability; only companies with both financial and non-financial data available for the entire period were included, ensuring comparability of the panel structure and minimising data imbalance issues. Due to the unavailability of data for 2022 for most companies, the initial year of analysis is set as 2023.

The dependent variables in the research are return on assets (ROA) and the price-to-earnings ratio (P/E). ROA is calculated as the ratio of net profit to total assets and is a standard accounting indicator of how effectively a company uses its assets to generate profits (Post and Byron, 2015). The P/E ratio is calculated as the ratio of a stock's market price to earnings per share, reflecting the market's perception of a company's value and investors' expectations of future returns (Simionescu et al., 2021), making it a particularly relevant indicator for listed companies. To reduce the impact of extreme values, winsorisation was applied to ROA, while the P/E ratio underwent a combined transformation: winsorisation and natural logarithm, ensuring a more stable distribution and higher suitability for econometric modelling. The analysis of the P/E ratio is conducted on a subsample of 40 profit making companies, as the P/E ratio is defined as the ratio of the market price of a share to positive earnings.

The independent variables include gender diversity, operationalised as the presence of women on boards of directors (binary variable: 1 - at least one woman present, 0 - no women on the board), sector affiliation (2-manufacturing; 3-construction; 4-wholesale and retail; 5-transportation and storage) and ownership structure (6-domestically owned; 7-foreign owned) as categorical nominal variables, and the time dimension (Year). Control variables include company size, operationalised as the total value of assets (Log Assets) and the number of employees (Log Emp), both transformed using natural logarithms to reduce heteroscedasticity and increase the linearity of relationships in regression models. Company size (Log Assets and Log Emp) is additionally modelled as dependent variables in separate robustness models.

4. Research Results

The results of the empirical analysis, conducted in three steps, descriptive statistics, correlation analysis, and multiple OLS regression models are presented below.

4.1 Results of Descriptive Statistics and Correlation Analysis

Table 1 presents the main descriptive indicators (mean, median, and standard deviation) for the observed variables, organised by year of observation.

Table 1*:* Descriptive Statistics

	Year	ROA (win)	Log Assets	Log Emp	P/E ratio (win-log)
N	2023	70	70	70	40
	2024	70	70	70	40
	2025	70	70	70	40
Mean	2023	-0.00870	16.4	3.66	1.75
	2024	-0.0760	16.5	3.59	1.82
	2025	-0.0893	16.5	3.51	1.91
Median	2023	0.00753	16.6	4.21	1.89
	2024	0.00590	16.7	4.17	1.75
	2025	0.00696	16.7	4.18	1.90
Standard Deviation	2023	0.150	1.34	1.91	2.05
	2024	0.407	1.39	1.96	1.99
	2025	0.440	1.42	2.01	2.10
	Gender diversity	**ROA (win)**	**Log Assets**	**Log Emp**	**P/E ratio (win-log)**
N	0-no	135	135	135	75
	1-yes	75	75	75	45
Mean	0-no	-0.0477	16.4	3.31	2.18
	1-yes	-0.0765	16.6	4.07	1.24
Median	0-no	0.00498	16.7	3.81	2.43
	1-yes	0.0126	16.7	4.53	1.51
Standard Deviation	0-no	0.294	1.36	2.03	2.08
	1-yes	0.450	1.42	1.70	1.82
	Industry sector	**ROA (win)**	**Log Assets**	**Log Emp**	**P/E ratio (win-log)**
N	2	129	129	129	66
	3	24	24	24	18
	4	39	39	39	27
	5	18	18	18	9
Mean	2	-0.0662	16.6	4.04	2.03
	3	0.0255	16.0	3.78	1.92
	4	0.00317	16.5	2.03	1.80
	5	-0.243	16.3	3.43	0.215
Median	2	0.00644	16.8	4.56	1.88
	3	0.0112	16.1	3.78	2.12
	4	0.00957	16.7	1.61	2.11
	5	0.00120	16.5	3.76	-2.12

Standard Deviation	2	0.359	1.53	1.86	1.81
	3	0.0330	0.797	1.22	1.78
	4	0.0523	1.02	1.72	1.93
	5	0.728	1.51	2.20	3.53
	Ownership structure	**ROA (win)**	**Log Assets**	**Log Emp**	**P/E ratio (win-log)**
N	6	189	189	189	105
	7	21	21	21	15
Mean	6	-0.0629	16.4	3.41	1,65
	7	-0.0138	17.5	5.21	3,09
Median	6	0.00673	17.6	3.78	1,76
	7	0.0246	17.9	5.32	2,93
Standard Deviation	6	0.368	1.31	1.96	2.06
	7	0.237	1.62	0.783	1.21

Note. 2-manufacturing; 3-construction; 4-wholesale and retail; 5-transportation and storage; 6-domestically owned; 7-foreign owned

Descriptive statistics show a generally low level of ROA among the companies in the sample. Average ROA values are negative throughout the observed period and display a deteriorating trend, while the positive median indicates an asymmetric distribution, with a smaller number of companies experiencing significant losses that substantially affect the average. Only 57% of companies are profitable, which may reflect the structural characteristics of an underdeveloped capital market. The average P/E ratio is rising slightly despite declining ROA, suggesting that investors retain certain expectations regarding future recovery. Sectoral analysis reveals marked differences in performance: construction show the most favourable and stable results, while the transport and storage sector exhibits the worst performance and the highest dispersion. Analysis by ownership structure shows that foreign owned companies achieve better business results and higher P/E ratio to domestic enterprises (Table 1).

To better understand the relationship between the observed variables, a correlation analysis is presented below.

Table 2*:* Correlation Matrix

		ROA (win)	Log Assets	Log Emp	Industry sector	Ownership structure	Gender diversity	Year
ROA (win)	Spearman's rho	—						
	p-value	—						
Log Assets	Spearman's rho	0.503**	—					
	p-value	<,001	—					
Log Emp	Spearman's rho	0.405**	0.649**	—				
	p-value	<,001	<,001	—				
Industry sector	Spearman's rho	-0.014	-0.127*	-0.297**	—			
	p-value	.840	.067	<,001	—			
Ownership structure	Spearman's rho	0.076	0.253**	0.302**	0.088	—		
	p-value	.274	<,001	<,001	.205	—		
Gender diversity	Spearman's rho	0.134*	0.061	0.184**	-0.019	0.050	—	
	p-value	.053	.381	.008	.789	.474	—	
Year	Spearman's rho	-0.068	0.036	-0.032	0.000	0.000	0.000	—
	p-value	.324	.609	.649	1.000	1.000	1.000	—

Note. ** - significant at the 5 % level; * significant at the 10 % level

Correlation analysis shows that company ROA is most strongly related to company size, measured by both total assets (Assets) and number of employees (Emp). Company size, in terms of number of employees, shows significant correlations with industrial sector, ownership structure, and gender diversity. Gender diversity shows only a borderline correlation with ROA. To determine whether the observed associations remain statistically significant after controlling for other variables, multiple OLS regression analysis was performed, with the results presented in Table 3.

4.2 Regression Analysis

The results of several OLS regression models are presented across four models, which explain ROA (Model 1), company size measured by total assets (Model 2) and number of employees (Model 3), and P/E ratio (Model 4). All models include gender diversity in management, industry sector, ownership structure, and time dimension, with corresponding control variables for company size.

Table 3: OLS regression model results

Variables	Model 1: ROA	Model 2: Log Assets	Model 3: Log Emp	Model 4: P/E
Gender diversity	-0.212 (0.040)	0.018 (0.150)	0.215** (0.202)	-0.277 (0.394)
Construction	0.487** (0.070)	-0.385** (0.228)	0.030 (0.315)	-0.145 (0.574)
Wholesale and retail	0.357** (0.063)	0.403*** (0.204)	-0.959*** (0.250)	-0.452* (0.477)
Transport and storage	-0.308 (0.081)	0.011 (0.262)	-0.257 (0.354)	-1.407*** (0.662)
Foreign ownership	-0.176 (0.077)	0.245 (0.250)	0.492*** (0.334)	1.191*** (0.557)
Log Assets	0.422*** (0.020)	—	0.506*** (0.081)	-0.119 (0.255)
Log Employees	0.140 (0.016)	0.547*** (0.044)	—	0.054 (0.157)
ROA (win)	—	0.298*** (0.215)	0.091 (0.310)	-0.347*** (3.540)
Year	-0.098 (0.026)	0.068 (0.085)	-0.035 (0.115)	0.228 (0.399)
R^2	0.292	0.499	0.537	0.308
Adj. R^2	0.263	0.479	0.519	0.244
N	210	210	210	120

Notes: Standardized coefficients (β) are reported. Standard errors (SE) are in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Reference categories: manufacturing and domestic ownership. P/E model uses reduced sample (N = 120)

Model 1 shows that a company's ROA is primarily determined by structural characteristics, the size of its assets and its industrial sector. Larger companies achieve a statistically significantly higher level of ROA, while construction and wholesale and retail record significantly higher levels of ROA compared to the manufacturing industry, which serves as the reference category. Gender diversity and ownership structure do not show a statistically significant direct impact on profitability.

Model 2 explains company size as measured by total assets. As assets and employment are complementary measures of company size confirmed by the legal framework, which defines company size through asset value, revenues, and number of employees their strong interconnection is expected and methodologically consistent. ROA also has a significant positive effect on asset size, confirming a two-way relationship between ROA and company size.

Model 3 further confirms this consistency, showing that asset size strongly determines employment. Foreign owned companies have a higher number of employees, reflecting their larger operational scale. Notably, this is the only model in which gender diversity has a statistically significant effect, companies with women in

management are associated with a larger workforce, an effect absent in the Model 1 (ROA) and Model 2 (Asset model).

Model 4 explains P/E ratio for a subsample of companies that operated with a profit. ROA has a strong negative effect on the P/E ratio, which can be partly explained by the mathematical nature of the indicator itself: companies with lower earnings per share, but a relatively stable market price, have a higher P/E ratio. Ownership structure has a pronounced positive effect, with foreign owned companies achieving higher P/E ratio, which may reflect higher investor confidence in management quality and business stability. Sectoral differences are also statistically significant; the transport and storage sector show significantly lower P/E ratio compared to the manufacturing industry. Gender diversity, despite its initial statistical significance in the correlation analysis, loses significance after controlling for other variables, suggesting that the initial relationship was mediated by the structural characteristics of the companies.

To verify the stability of the estimated coefficients, a multicollinearity analysis was performed using the Variance Inflation Factor (VIF). The results show that all VIF values in all models are below the conventional threshold of 5 (Kutner et al., 2005), indicating the absence of multicollinearity among the explanatory variables.

5. Discussion

The research results indicate that the presence of women on management boards does not have a statistically significant direct effect on ROA or asset size, with the only significant effect observed on the number of employees. This suggests that, in the context of BiH's transition economy, gender diversity reflects organisational size and complexity rather than driving financial performance. Kirsch (2018), in a systematic review of the literature, concludes that the effects of gender diversity manifest through internal organisational processes, not as a direct determinant of financial performance, while Baker et al. (2020) confirm that the contextual conditionality of these effects is one of the most consistent findings in the literature. This provides a partial answer to the first research question that gender diversity did not show a consistent effect on financial performance indicators, while its relationship with organisational size was confirmed.

The second research question concerned the role of the industrial sector and ownership structure in explaining differences in business performance. The results show that the industrial sector has a significant effect on all observed indicators, ROA, size, and P/E ratio, with sectoral differences remaining statistically significant even after controlling for other variables. Ownership structure shows a selective effect, foreign owned companies have more employees and a higher P/E ratio, but no statistically significant direct effect on ROA. This finding is partially consistent with the theory of institutional advantages (Dunning, 1988), which suggests that foreign companies bring better management practices and easier access to capital. However, in the transitional context of BiH, these advantages are primarily reflected through P/E ratio rather than operational profitability, which is consistent with previous empirical evidence from BiH (Džidić and Orsag, 2021). This finding addresses the second research question by indicating that structural characteristics, including the industrial sector, play a significant role in explaining differences in company performance.

The third research question investigated whether gender diversity independently affects a company's P/E ratio. Although the correlation analysis showed a statistically significant negative relationship between the presence of women in management and the P/E ratio, this effect disappeared after controlling for company characteristics in the regression model. This suggests that the observed relationship was driven by structural factors, particularly ownership structure and industry sector, rather than gender diversity itself. While previous studies report context dependent effects of gender diversity on market indicators (Post and Byron, 2015), and positive effects in specific sectors (Simionescu et al., 2021), the results of this study do not confirm an independent effect of gender diversity on the market value of companies in the observed transitional context. These findings provide an nswer to the third research question and further support the conclusion that gender diversity does not independently influence company valuation in the analysed sample.

6. Conclusion

This research analysed the relationship between gender diversity on boards, structural characteristics, and business performance of listed companies on the SASE during 2023–2025. The results of the empirical analysis suggest that gender diversity does not have a robust direct effect on company ROA or P/E ratio, while the only statistically significant effect is found in its relationship with organisational size, measured by the number of employees. Structural characteristics, such as industrial sector and ownership structure, show a consistently

stronger influence on all observed performance indicators, confirming that, in the transitional context, structural factors are the dominant determinants of company business performance.

The paper contributes to the literature by providing empirical insights into the effects of gender diversity from the transitional context of BiH and by confirming the dominant role of structural characteristics as determinants of profitability, measured by ROA, and market valuation, observed through the P/E ratio, in an insufficiently researched institutional environment.

The findings align with literature emphasizing that the effects of gender diversity are not universal but strongly dependent on institutional and market context. From a corporate governance perspective, the findings suggest that formal representation of women on boards, while necessary, may not be sufficient on its own to drive improved business outcomes in the specific institutional context of BiH. Regulatory frameworks, including Directive (EU) 2022/2381, provide an important foundation, but translating diversity into measurable performance gains will require broader organisational and institutional changes that go beyond board composition.

This study has several limitations, including the binary operationalisation of gender diversity, the relatively short three-year observation period, and a sample limited to a single stock exchange, which restricts the generalisability of the findings. Future research should use more nuanced measures of gender diversity, extend the observation period, and conduct comparative analyses across Western Balkan markets to provide a deeper understanding of how institutional context shapes the relationship between gender diversity and business performance in transition economies.

Ethics Declaration: Ethical approval was not required, as this study used only publicly available financial and corporate governance data and did not involve human participants, personal data, or experimental procedures.

AI Declaration: InstaText was used for language editing and readability improvements. The author reviewed all changes and takes full responsibility for the final content.

References

Baker, H. K., Pandey, N., Kumar, S. and Haldar, A. (2020) "A bibliometric analysis of board diversity: Current status, development, and future research directions", Journal of Business Research, 108, pp. 232–246. doi:10.1016/j.jbusres.2019.11.025.

Bennouri, M., Chtioui, T., Nagati, H. and Nekhili, M. (2018) "Female board directorship and firm performance: What really matters?", British Accounting Review, 50(3), pp. 346–362.

Burns, T. and Stalker, G. M. (1961) The Management of Innovation, Tavistock Publications, London.

Dang, R., Houanti, L., Reddy, K. and Simioni, M. (2021) "Does gender diversity within corporate boards affect firm performance? A conditional mediation model", Finance Research Letters, 40, 101713.

DiMaggio, P. J. and Powell, W. W. (1983) "The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields", American Sociological Review, 48(2), pp. 147–160. doi:10.2307/2095101.

Dunning, J. H. (1988) "The eclectic paradigm of international production: A restatement and some possible extensions", Journal of International Business Studies, 19(1), pp. 1–31.

Džidić, A. and Orsag, S. (2021) "Struktura vlasništva i performanse poduzeća: Slučaj Bosne i Hercegovine", Zbornik radova Ekonomskog fakulteta Sveučilišta u Mostaru, (Posebno izdanje), pp. 110–132. https://doi.org/10.46458/27121097.2021.PI.110

European Parliament and Council of the European Union (2022) Directive (EU) 2022/2381 of the European Parliament and of the Council of 23 November 2022 on improving the gender balance among directors of listed companies and related measures, Official Journal of the European Union.

Gordini, N. and Rancati, E. (2017) "Gender diversity in the Italian boardroom and firm financial performance", Management Research Review, 40(1), pp. 75–94.

Hoskisson, R. E., Hitt, M. A., Ireland, R. D. and Yiu, D. W. (2020) Strategic Management: Competitiveness and Globalization: Concepts and Cases (13th ed.), Cengage Learning, Boston.

Isidro, H. and Sobral, M. (2015) "The effects of women on corporate boards on firm value, financial performance, and ethical and social compliance", Journal of Business Ethics, 132(1), pp. 1–19.

Kirsch, A. (2018) "The gender composition of corporate boards: A review and research agenda", The Leadership Quarterly, 29(2), pp. 346–364.

Kutner, M. H., Nachtsheim, C. J., Neter, J. and Li, W. (2005) Applied Linear Statistical Models (5th ed.), McGraw-Hill/Irwin, New York.

Lawrence, P. R. and Lorsch, J. W. (1967) Organization and Environment: Managing Differentiation and Integration, Harvard Business School Press, Boston.

Marinova, J., Plantenga, J. and Remery, C. (2016) "Gender diversity and firm performance: Evidence from Dutch and Danish boardrooms", The International Journal of Human Resource Management, 27(15), pp. 1777–1790. doi:10.1080/09585192.2015.1079229.

Nguyen, T., Locke, S. and Reddy, K. (2015) "Does boardroom gender diversity matter? Evidence from a transitional economy", International Review of Economics & Finance, 37, pp. 184–202.

Organisation for Economic Co-operation and Development (2023) G20/OECD Principles of Corporate Governance, OECD Publishing, Paris.

Pfeffer, J. and Salancik, G. R. (1978) The External Control of Organizations: A Resource Dependence Perspective, Harper & Row, New York.

Pletzer, J. L., Nikolova, R., Kedzior, K. K. and Voelpel, S. C. (2015) "Does gender matter? Female representation on corporate boards and firm financial performance: A meta-analysis", PLoS ONE, 10(6), e0130005. doi:10.1371/journal.pone.0130005.

Post, C. and Byron, K. (2015) "Women on boards and firm financial performance: A meta-analysis", Academy of Management Journal, 58(5), pp. 1546–1571. doi:10.5465/amj.2013.0319.

Sanan, N., Jaisinghani, D. and Yadav, S. (2019) "Corporate governance, firm performance, and business group affiliation: Evidence from India", Management Decision, 59(8), pp. 1863–1876.

Sanan, N. K. (2023) "Board gender diversity and firm performance in emerging economies: A systematic review of literature". SSRN. Available at: https://ssrn.com/abstract=4644843

Simionescu, L. N., Gherghina, Ș. C., Tawil, H. and Sheikha, Z. (2021) "Does board gender diversity affect firm performance? Empirical evidence from Standard & Poor's 500 Information Technology Sector", Financial Innovation, 7(52). doi:10.1186/s40854-021-00265-x.

Torchia, M. and Calabrò, A. (2022) "Board gender diversity and firm innovation: A meta-analytic review", Journal of Management Studies, 59(3), pp. 745–778.

Williams, K. Y. and O'Reilly, C. A. (1998) "Demography and diversity in organizations: A review of 40 years of research", Research in Organizational Behavior, 20, pp. 77–140.

Differential Pathways to Digitalisation: A Multi-group Analysis of Trade and Services SMEs

Irena Mladenova and Zhelyu Vladimirov
Faculty of Economics and Business Administration, Sofia University St. Kliment Ohridski, Bulgaria

irenaml@feb.uni-sofia.bg (Corresponding author)

Abstract. Digitalisation is critical for the survival of small and medium-sized enterprises (SMEs), yet the mechanisms adopted across sectors vary significantly. This study combines the technology-organisation-environment (TOE) and the technology acceptance model (TAM) to investigate the impact of perceived benefits and the role of government support on the adoption of digital technologies (ADT). It examines the mediating role of transformational governance (TG). Two research questions are posed. First, to what extent do perceived benefits and government support stimulate SMEs' transformational governance to adopt digital technologies? Second, are there statistically significant differences in the mechanisms of digital technologies adoption between SMEs in the trade and services sectors? Data were collected from 509 SMEs in Bulgaria – 198 in trade (retail and wholesale), and 311 in the services sector. The study raised four hypotheses, which were analysed employing Structural Equation Modelling and Multi-Group Analysis. Findings related to RQ1 revealed that perceived benefits were found to be the strongest driver of ADT. Government support, while significant, has a direct but rather low impact on TG. This further supports the conclusion that SMEs respond more to their own perceptions of the value of digitalisation than to external stimuli. TG emerged as a critical mechanism that mediates the impact of perceived benefits on the actual adoption of digital technologies. Importantly, the MGA results highlight some key differences between services and trade SMEs (RQ2). The impact of perceived benefits on transformational governance is invariant. While government support is a significant, though weak, driver of ADT in services SMEs via TG, it is insignificant for trade SMEs. Furthermore, ADT in trade SMEs is strongly dependent on TG, whereas in services SMEs, perceived benefits emerge as an important catalyst. This study's findings contribute to the literature by highlighting the sector differences and the need for sector-specific approaches. It provides practical insights for policymakers and managers for navigating digitalisation successfully.

Keywords: Digital technologies adoption, Trade SMEs, Services SMEs, Multi-group analysis (MGA)

1. Introduction

The adoption of digital technologies (ADT) is already shaping new business models and creating new opportunities for firms. Researchers and practitioners, however, highlight some specific challenges faced by SMEs, such as resource and skills limitations, that distinguish them from large enterprises and result in slower, less effective digital uptake (Sagala and Őri, 2024; Kallmuenzer et al., 2025). Although governments deploy SME-targeted policies to facilitate digitalisation and reduce resource constraints, their effects are dubious. However, as Li et al. (2025) argue, the relative dominance of government and market forces in enterprise digital transformation remains underexplored.

Furthermore, digital technologies are not spreading evenly across firms in different sectors; thus, not every sector or firm benefits equally (Grashof and Kopka, 2023). Different sectors face variations in the factors that determine firm success in ADT – they face a diverse technological landscape, unequal transformation speed, and different diffusion of new digital products (Calvino, Costa and Haerle, 2026). Oliveira et al. (2014) find significant differences in the determining factors between manufacturing and service firms with respect to cloud computing adoption. Some studies show that manufacturing firms implement new technologies more intensively (Xie, Zhang and Blanco, 2023; Da Silva et al., 2025), while others reveal that service SMEs are more interested in digital transformation (Ghobakhloo and Iranmanesh, 2021; Krajčík et al., 2023). Conversely, Chapano and Werner (2026) demonstrate that the manufacturing sector lags in terms of digital adoption, the retail sector is a moderate adopter, while the finance sector is perceived as a strong adopter.

Digital uptake requires proper strategies and governance mechanisms to ensure technologies are not only introduced but also effectively used to realise their benefits. Some authors call for more empirical evidence of SME digitalisation across sectors (Meier, 2021). Both empirical research and theoretical work provide fragmented insights into the factors influencing SMEs' digitalisation (Dörr et al., 2023; Kahveci, 2025). While some studies provide insights into manufacturing (Chirumalla et al., 2025) and services (Smith, 2024) firms, the trade sector remains less explored.

In retail, as in services, digital technologies' benefits are expected to align with sectoral specifics and the focus on customer relationships and personalised experiences. The reason is that customers increasingly switch from traditional services and in-store shopping to e-services and online shopping (Ingaldi and Klimecka-Tatar, 2022).

Digital technologies are transforming the retailer-consumer interface (Grewal et al., 2023), fundamentally reconfiguring the retail value chain and shaping new business models, including platform-based retail (Zhang and Hänninen, 2022). However, targeted government support policies are typically less focused on the retail sector (Tilly and Carré, 2026). Yet, few studies examine government policies' influence on the digitalisation of enterprises, and the impact mechanisms remain unclear (Yu et al., 2025).

Thus, the following research questions are posed. RQ1: To what extent do perceived benefits and government support stimulate SMEs' transformational governance to adopt digital technologies? RQ2: Are there statistically significant differences in the mechanisms of digital technologies adoption between SMEs in trade and services sectors?

2. Theoretical Background

The theoretical framework that guides this study integrates the technology-organisation-environment model (TOE) (Tornatzky and Fleischer, 1990) with the technology acceptance model (TAM) (Davis, 1989). TOE helps explain technology adoption through the interaction of available internal/external technologies, organisational factors, and environmental pressure, including government policies. However, the TOE model does not address factors influencing the decision-making process, such as the perception of benefits, included in the TAM model. Although the TAM and the TOE models operate at different levels of analysis, individual and organisational, respectively, they are not mutually exclusive and can be effectively integrated (Safie et al., 2025). This integration allows for exploration of the interaction between environmental influence (government support) and perceived usefulness (benefits) and organisational factors (transformational governance) in the adoption of digital technologies.

Government support (GS). Governments and intergovernmental organisations design various support instruments to ease resource constraints for SMEs. GS here reflects policies promoting SME digitalisation through direct and indirect mechanisms such as subsidies and tax breaks, but also other policies that extend normative pressure, such as in the area of procurement (Yu et al., 2025).

Perceived benefits (PB). PB in this study captures the assessment of the benefits associated with using digital technologies. PB are found to be among the most important drivers of enterprise systems adoption (Faiz, Le and Masli, 2024; Szwajca and Rydzewska, 2025). Theeb et al. (2023) find that perceived usefulness of smart technologies impacts retail stores' performance. Digital technologies are associated with better market and innovation performance (Wang et al., 2025); thus, perceptions of such benefits are expected to drive decisions to digitalise.

Transformational governance (TG). TG here reflects the clarity of roles, responsibilities, and performance measurement, such as goal setting and regular review of their achievement, in support of digitalisation. These are the internal organisational mechanisms that guide the adoption of digital technologies in SMEs. In order to realise their full value, investments in digital technologies should be aligned with organisational elements such as strategies and processes. That is, TG is expected to operationalise the drivers into guidance for ADT by setting clear goals and allocating resources (Chen et al., 2025; Rizana, Wiratmadja and Akbar, 2025).

Adoption of digital technologies (ADT). ADT measures the extent to which SMEs use digital technologies, such as social media, mobile, analytics, and cloud (SMAC) (Gonese and Ngepah, 2024), as well as more advanced technologies like artificial intelligence (AI), blockchain, and the internet of things (IoT) (Ingaldi and Klimecka-Tatar, 2022). Its success would depend on the alignment of drivers and organisational elements, as firms increasingly use multiple technologies simultaneously. ADT allows unveiling the extent to which firms implement these technologies in bundles.

Often, external drivers (including GS) are found to directly impact ADT. Similarly, positive perceptions (PB) of managers impact their willingness to pursue digitalisation. Other studies, however, highlight that while environmental factors initiate digitalisation, its success depends on balancing internal and external environments (Shao et al., 2025). Therefore, this study posits that ADT depends on how these drivers are interpreted within the SME governance mechanisms that guide the adoption and successful utilisation of digital technologies.

Thus, the following hypotheses are raised:

H1. PB of digitalisation has a positive impact on TG.

H2. GS has a positive impact on TG.

H3a. TG mediates the relationship between PB and ADT.

H3b. TG mediates the relationship between GS and ADT.

H4. There is a difference in the mechanism of ADT between trade and services SMEs.

3. Method

3.1 Context

The role of SMEs in the Bulgarian economy is similarly important as in other EU countries (Eurostat, 2026). In 2023, SMEs represented 99.8% of all firms, contributed 74% of total employment, and 67% of gross value added (BSMEPA, 2024). The Bulgarian SME Strategy highlights the need to support specialisation in high-tech manufacturing and knowledge-intensive services, and digitalisation in all economic sectors. However, in terms of adopting digital technologies, Bulgarian SMEs lag behind both local large firms (NSI, 2023) and SMEs in the EU. The e-commerce turnover share for Bulgarian SMEs is the lowest in the EU, accounting for 6.68%; similarly, only around 50% of the Bulgarian SMEs have at least a basic level of digital intensity (EC, 2025). The other digital transformation indicators tracking technology uptake show similar gaps.

3.2 Sample and Data Collection

The target population of this study included SMEs in the services and trade (retail and wholesale) sectors in Bulgaria. Sample acquisition was performed by a market research firm using non-probability convenience sampling. Data were collected during October-December 2023 using a standardised questionnaire with a single respondent per firm via personal interviews.

The sample includes 509 SMEs, of which 198 are in trade (38.9%), and 311 are in the services sector (61.1%). 51.5% are micro (up to 9 employees), 29.3% are small (10-49 employees), and 19.2% are medium-sized (50-249 employees) enterprises. 72.5% of the respondents are owners, partners, or members of the management board, and the rest are in senior management positions, making them qualified to respond to questions related to the adoption of digital technologies.

3.3 Variables' Definitions and Measures

The items to measure the four variables in this study were adapted based on the literature review and validated through interviews with subject-matter experts. The items were translated into Bulgarian and measured on a 5-point Likert scale (1=completely disagree/not at all important, 5=completely agree/very important). The final list of items is available in the Appendix.

3.4 Analytical Procedure

Data were analysed with lavaan in R (Rosseel, 2012). Structural Equation Modelling (SEM) was selected as an appropriate analytical procedure to explore RQ1. SEM allows the exploration of complex research models with many variables and relationships and is not dependent on the normality of data distribution (Hair et al., 2019). To explore RQ2, multi-group analysis (MGA) was performed.

4. Analysis and Results

4.1 Descriptive Statistics

All variables were significantly and positively correlated, meaning further analysis could be performed (Table 1). All correlation coefficients were below 0.8, suggesting multicollinearity was not expected. The problem of common method variance (CMV) was addressed using Harman's one-factor test (Podsakoff et al., 2003). The total variance extracted by a single factor was 42.682%, suggesting that CMV was unlikely to severely distort the findings. Procedural remedies were also applied during the survey design, such as ensuring respondent anonymity.

4.2 Measurement Model

The measurement model was tested using confirmatory factor analysis (CFA). Several of the initially included items were removed due to low loadings (in ADT and GS constructs). The resulting measurement model demonstrated good reliability and convergent validity. Standardised factor loadings for all items exceeded 0.7 except one ADT indicator (0.651), which was retained to represent the scale better. AVE values ranged from 0.553 to 0.824. Construct reliability was further supported by McDonald's omega values, all of which were above 0.70. The model demonstrated satisfactory fit indices: $\chi2(183)=265.04$, $p<0.001$; CFI=0.999; TLI=0.999;

RMSEA=0.030; and SRMR=0.032. The HTMT ratios ranged from 0.475 to 0.756, well within the recommended limit of 0.85, and supported the discriminant validity of the measurement model.

Table 1: Means, standard deviations, and correlations with confidence intervals

Variable	# of items	M	SD	1	2	3
1. ADT	3	2.55	1.04			
2. TG	6	3.04	1.02	0.60** [0.54, 0.65]		
3. PB	8	3.53	0.90	0.56** [0.50, 0.62]	0.65** [0.60, 0.70]	
4. GS	4	3.11	0.99	0.40** [0.33, 0.48]	0.44** [0.37, 0.51]	0.52** [0.46, 0.58]

Note. Values in square brackets indicate the 95% confidence interval for each correlation; **p<0.01.

4.3 Structural Model

Given the ordered categorical nature of all items, diagonally weighted least squares (DWLS) estimation with polychoric correlations was employed for the structural model. Collinearity issues were not identified for the model (VIF<3). The structural model demonstrated excellent fit to the data based on several fit indices: CFI=0.993, TLI=0.956, and SRMR=0.017, although RMSEA was 0.141 (90% CI [0.075, 0.221]), exceeding the conventional threshold. This discrepancy is a known statistical artefact common in models with small degrees of freedom; thus, the model was deemed to provide a robust representation of the data (Kenny, Kaniskan and McCoach, 2015).

The structural model results (Table 2) indicate that all hypothesised paths are statistically significant. PB exerted a strong positive direct effect on TG (β=0.641, p<0.001) and ADT (β=0.425, p<0.001). GS also positively predicted TG, albeit with a smaller effect size (β=0.103, p=0.021). Therefore, H1 and H2 were supported.

Mediation analysis revealed significant indirect effects for both predictors. TG was found to significantly mediate the relationship between PB and ADT (β=0.337, p<0.001, 95% CI [0.287, 0.387]), as well as between GS and ADT (β=0.054, p=0.026, 95% CI [0.006, 0.102]). Since the direct effect of PB remained significant after controlling for the mediator, partial mediation was established. The total impact of PB on ADT was substantial (β=0.762, p<0.001). Therefore, H3a and H3b were supported.

Table 2: Structural Model Path Coefficients and Mediation Analysis

Effect Type	Outcome	Predictor	SE	z	p	β (Std.)	95% CI Lower	95% CI Upper
Direct	TG	PB	0.039	16.281	<0.001	0.641	0.564	0.718
	TG	GS	0.045	2.301	0.021	0.103	0.015	0.191
	ADT	TG	0.029	18.072	<0.001	0.526	0.469	0.583
	ADT	PB	0.029	14.818	<0.001	0.425	0.368	0.481
Indirect	ind_GS_ADT	a2*b	0.024	2.224	0.026	0.054	0.006	0.102
	ind_PB_ADT	a1*b	0.026	13.169	<0.001	0.337	0.287	0.387
Total	total_PB_ADT	c1+(a1*b)	0.024	31.263	<0.001	0.762	0.714	0.810

To test H4, MGA was performed. First, a configural invariance model was assessed utilising the robust DWLS estimator for ordinal data. The configural model demonstrated excellent fit (Scaled $\chi^2(368)=648.85$, p<0.001; CFI=0.992; TLI=0.990; RMSEA=0.055; SRMR=0.043), establishing that the construct configurations are identical across the two groups (Vandenberg and Lance, 2000).

To evaluate the formal statistical equality of path coefficients between the Trade (n=198) and Services (n=311) groups, Wald Chi-square tests were run. The tests confirm that the differences are statistically significant for all paths except PB->TG (Table 3).

Table 3: Statistical Tests of Path Coefficient Differences and Structural Path Coefficients

Structural Path	Between-Group Wald Test Result	Trade	Services	Conclusion
PB→TG	$\chi^2(1)=0.055$, p=0.815 Statistically Not Significant	0.624***	0.576***	No statistically significant difference
GS→TG	$\chi^2(1)=4335$, p=0.037 Statistically Significant (p<0.05)	0.008	0.190***	Stronger in Services
TG→ADT	$\chi^2(1)=4.855$, p=0.028 Statistically Significant (p<0.05)	0.537***	0.314***	Stronger in Trade
PB→ADT	$\chi^2(1)=3.514$, p=0.061 Marginally Significant (p<0.1)	0.244*	0.449***	Marginally stronger in Services

Note. Standardised coefficients are reported. *p< .05, ***p<0.001.

The strongest gap is in the relationship GS->TG: while it is significant in services, it is not in trade. The impact of TG on ADT is stronger in trade, and the impact of PB on ADT is stronger in services. The impact of PB on TG is invariant. Therefore, H4 is confirmed.

The resulting model is illustrated in Fig. 1.

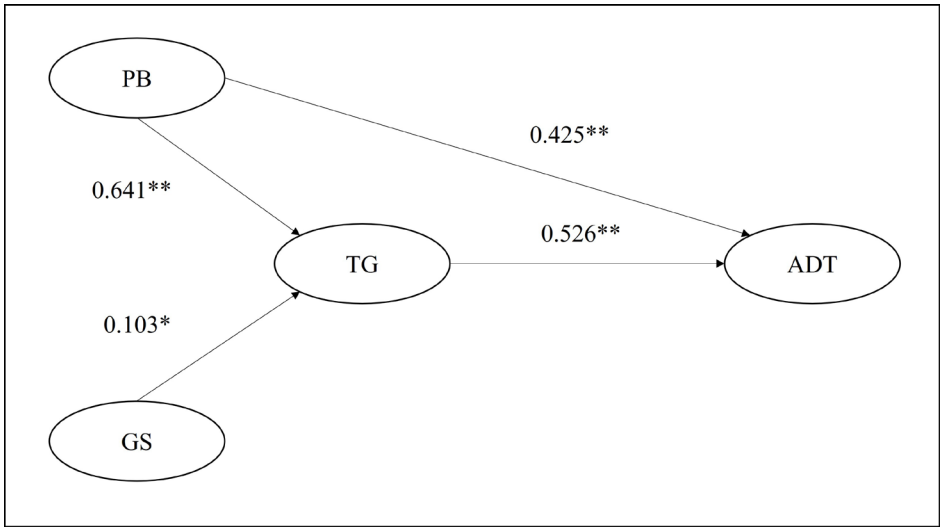


Figure 1: Resulting Model

Note. * $p < 0.05$; ** $p < 0.01$.

5. Discussion and Conclusion

This study aimed to explore the mechanisms of ADT in SMEs in two sectors (services and trade) and possible differences between them. The influence of PB and GS on TG, which shapes ADT, was evaluated.

PB was found to be the strongest driver of ADT. The strong effect of PB on TG suggests that when SMEs see value in digitalising, they engage in aligning the roles, responsibilities, and performance measurements to realise this value. This alignment positively impacts ADT.

Importantly, the direct impact of GS on TG, while significant, is rather low. This further supports the conclusion that SMEs respond more to their own perceptions of the value of digitalisation than to external stimuli. According to Yuen (2023), although government initiatives have encouraged SMEs to digitalise, their progress has been slow. One possible explanation could be that GS might not always align with management's aspirations and strategic plans, resulting in limited impact.

TG emerged as a critical mechanism that mediates the impact of PB on the actual ADT. PB impacts ADT both directly and indirectly. That is, digitalisation requires both understanding what the benefits are and aligning TG

accordingly to realise these benefits (Kallmuenzer et al., 2025). TG also mediates the effect of GS on ADT, although it seems to be valid only for services sector SMEs.

Importantly, MGA results highlight some key differences between the services and trade SMEs. The impact of PB on TG is invariant. In line with the TAM model, SME owners and managers who see the usefulness of ADT for improving performance would invest in designing appropriate governance mechanisms to reap the benefits (Yacob and Peter, 2022).

In the trade sector, TG's role is stronger. That is, proper management of the process (roles, responsibilities, strategy, measuring results) has a stronger effect on ADT. Conversely, the role of PB in fostering ADT is stronger in the services sector. Services sector SMEs seem more flexible in adopting digital technologies, which they perceive as beneficial. The results of Szwajca and Rydzewska (2025) also show that the economic sector has a significant role in shaping firms' expectations of the positive impact of digitisation.

Interestingly, GS impacts TG in the services sector only. One possible explanation of this finding can be the structure of government financing programs in Bulgaria, which are more targeted to manufacturing SMEs. Accordingly, the studied SMEs assess GS as rather neutral. Besides, as Tilly and Carré (2026) argue, retailers face multiple challenges and flaws in digital technologies themselves. Therefore, the studied trade SMEs seem to rely more on their internal TG processes to adopt digital technologies based on PB, and less on GS.

Even in the services sector, GS is not a strong predictor. This aligns with other studies that find a statistically significant, yet marginal role of government policies for the digitalisation of SMEs (Omrani et al., 2022).

This study's findings corroborate prior research findings that digitalisation is not a "one-size-fits-all" process and sectoral specifics should be considered. The OECD (2021) also find that the cross-industry differences in the diffusion of digital technologies are significant. Elo et al. (2026) reveal that firms in knowledge-intensive services have implemented most digitalisation projects, as contrasted with firms in the "other services" category (e.g., transport, warehousing).

From a theoretical perspective, the study confirms the applicability of a combined TOE-TAM model for investigating ADT in SMEs. Some practical recommendations can be derived as well. First, managers of trade SMEs should prioritise the formalisation of their digital strategies. TG is essential, as it helps translate organisational goals into actual technological adoption. Second, managers of services SMEs should continue investing in training and awareness about digital technologies' strategic advantages. PB emerges as the strongest driver for this group, thus fostering a culture that recognises the value of digitalisation is vital.

For policy-makers, these results suggest that GS should be combined with building awareness of the digitalisation benefits (especially for services SMEs), improving managerial capabilities and governance processes (especially in trade SMEs) to increase digital uptake.

This study has its limitations. First, it is cross-sectional, and data were collected from a single respondent in each SME; thus, CMV cannot be completely ruled out. It explores a single national context, with its specificities. As a single study, it could not explore more complex relationships and more variables that could have improved its explanatory strength. Adding manufacturing SMEs could help determine whether the revealed mechanisms are applicable across sectors or align more closely with services and trade SMEs only.

Acknowledgements

This study was supported by the project Twinning2Green Transition Leadership (No. BG16RFPR002-1.009-0002), funded by PRIDST.

Ethics Declaration: Data collection procedures were performed in accordance with the ethical standards of Sofia University St. Kliment Ohridski, the European Code of Conduct for Research Integrity, and the Ethics in Social Sciences and Humanities principles of the European Commission.

AI Declaration: AI tools were used for linguistic refinement during the review of draft versions of the article. The authors maintained full control, verified all AI-generated suggestions, and take full responsibility for the accuracy and integrity of the final text.

References

Berger, S., Denner, M.-S. and Roeglinger, M. (2018) 'The Nature of Digital Technologies - Development of a Multi-Layer Taxonomy', *Research Papers*, 92.

Berghaus, S. and Back, A. (2016) 'Stages in Digital Business Transformation: Results of an Empirical Maturity Study', *MCIS 2016 Proceedings*.

BSMEPA (2024) *Annual Report – Small and Medium Sized Enterprises in Bulgaria | Bulgarian Small and Medium-sized Enterprises Promotion Agency* (in Bulgarian). Available at: https://www.sme.government.bg/?p=67321 (Accessed: 26 January 2026).

Calvino, F., Costa, H. and Haerle, D. (2026) 'Digital technology diffusion in the age of AI: Cross-country evidence from microdata', *OECD Science, Technology and Industry Working Papers*, 2026(01). Available at: https://doi.org/10.1787/ebc2debe-en (Accessed: 9 April 2026).

Chapano, M. and Werner, A. (2026) 'Uneven digital frontiers: Adoption of digital technologies across finance, retail and manufacturing sectors in South Africa', *South African journal of information management*, 28(1), p. a2081. https://doi.org/10.4102/SAJIM.v28i1.2081.

Chen, M. et al. (2025) 'Digital Transformation in Project Management: A Systematic Review and Research Agenda', *Systems*, 13(8), p. 625. https://doi.org/10.3390/systems13080625.

Chirumalla, K. et al. (2025) 'Critical factors affecting digital transformation in manufacturing companies', *International Entrepreneurship and Management Journal*, 21(1), p. 54. https://doi.org/10.1007/s11365-024-01056-3.

Da Silva, A. et al. (2025) 'How digital technologies enhance competitiveness in manufacturing SMEs', *Journal of Innovation and Entrepreneurship*, 14(1), p. 103. https://doi.org/10.1186/s13731-025-00576-8.

Davis, F.D. (1989) 'Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology', *MIS Quarterly*, 13(3), pp. 319–340. https://doi.org/10.2307/249008.

De Mattos, C.S. et al. (2024) 'Systematic literature review on technological transformation in SMEs: a transformation encompassing technology assimilation and business model innovation', *Management Review Quarterly*, 74(2), pp. 1057–1095. https://doi.org/10.1007/s11301-023-00327-7.

Dörr, L. et al. (2023) 'A Taxonomy on Influencing Factors Towards Digital Transformation in SMEs', *Journal of Small Business Strategy*, 33(1). https://doi.org/10.53703/001c.66283.

EC (2025) *2025 State of the Digital Decade package | Shaping Europe's digital future*. Available at: https://digital-strategy.ec.europa.eu/en/policies/2025-state-digital-decade-package (Accessed: 27 January 2026).

Elo, T. et al. (2026) 'Future of knowledge-intensive work: stakeholder perceptions on technology-driven changes in the accounting profession', *Review of Managerial Science*, 20(3), pp. 957–993. https://doi.org/10.1007/s11846-025-00896-9.

Eurostat (2026) *Structural business statistics overview*. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Structural_business_statistics_overview (Accessed: 12 May 2026).

Faiz, F., Le, V. and Masli, E.K. (2024) 'Determinants of digital technology adoption in innovative SMEs', *Journal of Innovation & Knowledge*, 9(4), p. 100610. https://doi.org/10.1016/j.jik.2024.100610.

Ghobakhloo, M. and Iranmanesh, M. (2021) 'Digital transformation success under Industry 4.0: a strategic guideline for manufacturing SMEs', *Journal of Manufacturing Technology Management*, 32(8), pp. 1533–1556. https://doi.org/10.1108/JMTM-11-2020-0455.

Gonese, D. and Ngepah, N.N. (2024) 'Fourth industrial revolution technologies and sectoral employment in South Africa', *Cogent Social Sciences*, 10(1), p. 2382282. https://doi.org/10.1080/23311886.2024.2382282.

Grashof, N. and Kopka, A. (2023) 'Artificial intelligence and radical innovation: an opportunity for all companies?', *Small Business Economics*, 61(2), pp. 771–797. https://doi.org/10.1007/s11187-022-00698-3.

Grewal, D. et al. (2023) 'Leveraging In-Store Technology and AI: Increasing Customer and Employee Efficiency and Enhancing their Experiences', *Journal of Retailing*, 99(4), pp. 487–504. https://doi.org/10.1016/j.jretai.2023.10.002.

Hair, J.F. et al. (2019) 'When to use and how to report the results of PLS-SEM', *European Business Review*, 31(1), pp. 2–24. https://doi.org/10.1108/EBR-11-2018-0203.

Ingaldi, M. and Klimecka-Tatar, D. (2022) 'Digitization of the service provision process - requirements and readiness of the small and medium-sized enterprise sector', *Procedia Computer Science*, 200, pp. 237–246. https://doi.org/10.1016/j.procs.2022.01.222.

Kahveci, E. (2025) 'Digital Transformation in SMEs: Enablers, Interconnections, and a Framework for Sustainable Competitive Advantage', *Administrative Sciences*, 15(3), p. 107. https://doi.org/10.3390/admsci15030107.

Kallmuenzer, A. et al. (2025) 'Adoption and performance outcome of digitalization in small and medium-sized enterprises', *Review of Managerial Science*, 19(7), pp. 2011–2038. https://doi.org/10.1007/s11846-024-00744-2.

Kenny, D.A., Kaniskan, B. and McCoach, D.B. (2015) 'The Performance of RMSEA in Models With Small Degrees of Freedom', *Sociological Methods & Research*, 44(3), pp. 486–507. https://doi.org/10.1177/0049124114543236.

Krajčík, V. et al. (2023) 'Digital Literacy and Digital Transformation Activities of Service and Manufacturing SMEs', *Journal of Tourism and Services*, 14(26), pp. 242–262. https://doi.org/10.29036/jots.v14i26.551.

Li, T., Ni, L. and Xu, Y. (2025) 'Enterprise Digital Transformation Drivers: Market or Government? A Case Study from China', *Journal of Theoretical and Applied Electronic Commerce Research*, 20(2), p. 131. https://doi.org/10.3390/jtaer20020131.

Luo, X. and Yu, S.-C. (2022) 'Relationship between External Environment, Internal Conditions, and Digital Transformation from the Perspective of Synergetics', *Discrete Dynamics in Nature and Society*. Edited by J. Su, 2022, pp. 1–12. https://doi.org/10.1155/2022/6756548.

Meier, A. (2021) 'Systematic Review of the Literature on SME Digitalization: Multi-sided Pressure on Existing SMEs', in D.R.A. Schallmo and J. Tidd (eds) *Digitalization*. Cham: Springer International Publishing (Management for Professionals), pp. 257–276. https://doi.org/10.1007/978-3-030-69380-0_14.

NSI (2023) *ICT usage in enterprises | National Statistical Institute*. Available at: https://www.nsi.bg/en/content/2841/ict-usage-enterprises (Accessed: 27 October 2024).

OECD (2021) *The Digital Transformation of SMEs*. OECD (OECD Studies on SMEs and Entrepreneurship). https://doi.org/10.1787/bdb9256a-en.

Oliveira, T., Thomas, M. and Espadanal, M. (2014) 'Assessing the determinants of cloud computing adoption: An analysis of the manufacturing and services sectors', *Information & Management*, 51(5), pp. 497–510. https://doi.org/10.1016/j.im.2014.03.006.

Omrani, N. et al. (2022) 'Drivers of Digital Transformation in SMEs', *IEEE Transactions on Engineering Management*, 71, pp. 5030–5043. https://doi.org/10.1109/TEM.2022.3215727.

Podsakoff, P.M. et al. (2003) 'Common method biases in behavioral research: A critical review of the literature and recommended remedies.', *Journal of Applied Psychology*, 88(5), pp. 879–903. https://doi.org/10.1037/0021-9010.88.5.879.

Rizana, A.F., Wiratmadja, I.I. and Akbar, M. (2025) 'Exploring Capabilities for Digital Transformation in the Business Context: Insight from a Systematic Literature Review', *Sustainability*, 17(9), p. 4222. https://doi.org/10.3390/su17094222.

Rosseel, Y. (2012) 'lavaan: An R Package for Structural Equation Modeling', *Journal of Statistical Software*, 48(2), pp. 1–36. https://doi.org/10.18637/jss.v048.i02.

Safie, S.I. et al. (2025) 'Integrating individual and organizational perspectives: A TAM-TOE framework for ISO 27037 adoption in Malaysian government digital forensics agencies', *Journal of Open Innovation: Technology, Market, and Complexity*, 11(3), p. 100595. https://doi.org/10.1016/j.joitmc.2025.100595.

Sagala, G.H. and Őri, D. (2024) 'Toward SMEs digital transformation success: a systematic literature review', *Information Systems and e-Business Management*, 22(4), pp. 667–719. https://doi.org/10.1007/s10257-024-00682-2.

Shao, Q. et al. (2025) 'Analysis of Key Factors Affecting the Digital Transformation of Small and Medium-Sized Manufacturing Enterprises in China', *Sage Open*, 15(2), p. 21582440251336077. https://doi.org/10.1177/21582440251336077.

Smith, J. (2024) 'Influence of Digital Transformation on Firm Performance in the Service Industry in United States', *International Journal of Business Strategies*, 9(1), pp. 63–74. https://doi.org/10.47672/ijbs.1823.

Szwajca, D. and Rydzewska, A. (2025) 'Effects and Determinants of Implementing Digital Customer Service Tools in Polish SMEs', *Sustainability*, 17(3), p. 1022. https://doi.org/10.3390/su17031022.

Theeb, K.A. et al. (2023) 'The impact of information technology on retail industry: an empirical study', *International Journal of Procurement Management*, 16(4), p. 549. https://doi.org/10.1504/IJPM.2023.129553.

Tilly, C. and Carré, F. (2026) 'Digital Transformation of Retail Work: The Rise of Chaotic Rationalisation', *British Journal of Industrial Relations*, 64(2), pp. 378–393. https://doi.org/10.1111/bjir.70051.

Tornatzky, L.G. and Fleischer, M. (1990) *The processes of technological innovation*. 4. print. Lexington, Mass.: Lexington Books (Issues in organization and management series).

Vandenberg, R.J. and Lance, C.E. (2000) 'A Review and Synthesis of the Measurement Invariance Literature: Suggestions, Practices, and Recommendations for Organizational Research', *Organizational Research Methods*, 3(1), pp. 4–70. Available at: https://doi.org/10.1177/109442810031002.

Wang, C. et al. (2025) 'Assessing the Impact of Digital Transformation on Manufacturing Enterprises' Performances: An Efficiency Perspective', *International Journal of Financial Studies*, 13(4), p. 241. https://doi.org/10.3390/ijfs13040241.

Xie, X., Zhang, H. and Blanco, C. (2023) 'How organizational readiness for digital innovation shapes digital business model innovation in family businesses', *International Journal of Entrepreneurial Behavior & Research*, 29(1), pp. 49–79. https://doi.org/10.1108/IJEBR-03-2022-0243.

Yacob, P. and Peter, D. (2022) 'Perceived Benefits of Sustainable Digital Technologies Adoption in Manufacturing SMEs', *International Journal of Innovation and Technology Management*, 19(04), p. 2250012. https://doi.org/10.1142/S0219877022500122.

Yu, F. et al. (2025) 'Digitalization policy and enterprise digital transformation: The role of big data capability', *Economic Analysis and Policy*, 86, pp. 2095–2113. https://doi.org/10.1016/j.eap.2025.05.049.

Yuen, T.M. (2023) 'Going Digital for SMEs: Adapting Business Model and Seizing Opportunities to Achieve Sustainable Business Performance', *International Journal of Academic Research in Business and Social Sciences*, 13(11), p. Pages 975-986. https://doi.org/10.6007/IJARBSS/v13-i11/19401.

Zhang, L. and Hänninen, M. (2022) 'Digital retail—key trends and developments', in B.L. MacCarthy and D. Ivanov (eds) *The Digital Supply Chain*. Elsevier, pp. 237–254. https://doi.org/10.1016/B978-0-323-91614-1.00014-9.

Appendix 1

Table 4: Items' Loadings, Cronbach's Alpha, McDonald's Omega, and AVE

Constructs and Items	Loading	Alpha	Omega	AVE
ADT, adapted from Berger et al. (2018)*		0.677	0.718	0.553
Big Data	0.800			
Cloud computing	0.773			
Mobile technologies	0.651			
TG, adapted from Berghaus and Back (2016)		0.952	0.950	0.824
Digitalisation is integrated into our corporate strategy and follows a defined strategic plan	0.934			
Roles, responsibilities, and decision-making processes are defined	0.891			
Goals are defined measurably	0.907			
Goals are reviewed periodically	0.920			
The necessary resources for implementing new digital technologies are allocated	0.910			
The latest developments in digital technologies are constantly monitored	0.883			
PB, adapted from De Mattos et al. (2024)		0.939	0.938	0.720
Enable the processing of large and important data as a basis for management decisions	0.855			
Provide the opportunity for the electronic exchange of necessary documents	0.757			
Facilitate the development of new business models	0.871			
They are essential for innovation in the firm	0.885			
Lead to improvement of internal operational processes in the firm	0.852			
Help increase revenue	0.841			
Help reduce costs	0.825			
Help achieve competitive advantage	0.893			
GS, adapted from Luo and Yu (2022)		0.909	0.909	0.773
Government financial subsidies	0.860			
Tax breaks	0.839			
Government procurement policies	0.908			
National and EU-supported programs	0.907			

Note. *Indicators for usage of social media, IoT, and AI were omitted due to low loadings.

Cultural Configurations and Quality Management Maturity in the Public Sector

Veronica Moscon
Institute for Public Management, Eurac Research, Bolzano-Bozen, Italy

veronica.moscon@eurac.edu

Abstract: Public sector organizations increasingly rely on standardized Total Quality Management (TQM) models, yet they reach different levels of quality management maturity. Even when organizations adopt the same models and follow identical guidelines, only some succeed in embedding quality principles into everyday practices and achieving externally recognized excellence. Prior research highlights the importance of organizational culture for the implementation of TQM, but little is known about how different cultural dimensions combine to shape quality management outcomes in public sector settings. Despite the widespread diffusion of public-sector excellence models such as the Common Assessment Framework (CAF), little is known about which cultural characteristics enable public organizations to move toward substantive excellence. Accordingly, this study addresses two research questions: (1) which configurations of organizational culture are associated with quality management maturity in public sector organizations, and (2) how administrative traditions relate to these configurations. The analysis draws on survey data collected from public sector organizations. Organizational culture is operationalized using the Competing Values Framework, while quality management maturity is measured through externally assessed CAF-based indicators. Fuzzy-set Qualitative Comparative Analysis (fsQCA) is employed to capture configurational complexity. The findings show that no stable or generalizable configurational pathway can be identified for the presence of high-quality management maturity. Cultural configurations characterized by strong profiles across multiple dimensions are widespread but do not consistently distinguish between cases with higher and lower outcome levels. In contrast, the analysis of the negated outcome reveals a coherent and robust structure, with configurations centered on low rational culture consistently associated with lower levels of maturity. These patterns are stable across alternative model specifications and are not confined to specific administrative contexts.

Keywords: Quality management, Public sector excellence, Organizational culture, Administrative traditions, Fuzzy set qualitative comparative analysis

1. Introduction

Although Total Quality Management (TQM) models have become widely adopted in the public sector, organizations vary considerably in their progress toward excellence. Even when organizations adopt the same models and follow identical guidelines, some achieve high levels of excellence while others do not. This variation is difficult to reconcile with the widespread view of quality management as a standardized, context-independent approach intended to function similarly across organizations (Lagrosen, 2002). Early studies showed that although the principles of TQM are broadly applicable, their implementation is highly sensitive to the environment in which they are applied, particularly in the public sector where measurement and coordination challenges are more pronounced (Ehrenberg & Stupak, 1994). Because TQM requires changes in how people interact and work, it is inherently context-dependent and its success is influenced by cultural and structural conditions (Tata & Prasad, 1998). Reflecting this, organizations have increasingly recognized the need to assess their cultural characteristics before implementing TQM, as certain cultural patterns can shape the way quality initiatives are interpreted and enacted (Jancikova & Brychta, 2009). These observations raise a central question: to what extent do cultural characteristics explain differences in how public organizations translate TQM practices into higher levels of maturity and excellence?

Culture has been repeatedly highlighted as a key factor shaping how quality management practices are interpreted and applied. Prior research shows that quality management is interpreted and implemented differently across cultural and administrative contexts, shaping both its application and its effects on organizational performance (Lagrosen, 2003; Mathews et al., 2001; Zu et al., 2010; Alofan et al., 2020). At the organizational level, culture is therefore considered a central contextual factor in explaining variation in quality management outcomes (Do Nascimento Gambi et al., 2014). Empirical research shows that misalignment between an organization's cultural patterns and quality management principles can hinder implementation, with many TQM initiatives failing as a result (Gimenez-Espin et al., 2012; 2023). The relationship is also reciprocal: a well-implemented quality management system can influence and reshape cultural norms, while the existing cultural environment simultaneously affects how the system is interpreted and how it functions (Jancikova & Brychta, 2009).

In the public sector, organizational culture is closely intertwined with broader institutional and administrative traditions that shape how management approaches are interpreted and applied. Public organizations operate

within established administrative systems that reflect long-standing national traditions, role conceptions, and behavioural expectations (Painter & Peters, 2010). These traditions are expressed through organizational routines, norms, and decision-making practices (Christensen & Lægreid, 2007). As a result, organizational culture emerges from the interaction between internal organizational dynamics and the wider institutional context (Jugl, 2025). Accordingly, existing studies highlight the importance of examining how organizational and administrative culture jointly influence the implementation of quality management practices (Prajogo et al., 2022).

However, despite the recognized relevance of culture, little is known about whether specific cultural characteristics or combinations systematically distinguish public organizations in the extent to which quality management is translated into more mature and embedded practices, particularly in relation to structured excellence models such as the Common Assessment Framework (CAF). While previous research often assumes that certain cultural profiles (e.g., flexible and externally oriented) support TQM, empirical evidence on how different cultural dimensions combine and whether such configurations are associated with variations in quality management maturity remains limited. To address this gap, this study examines the relationship between organizational culture, administrative traditions, and quality management maturity in public sector organizations. Specifically, it addresses two research questions:

RQ1: What combinations of cultural dimensions are associated with differences in quality management maturity?

RQ2: How do administrative traditions shape the relationship between organizational culture and quality management maturity?

2. Literature Review and Conceptual Background

Public sector organizations increasingly rely on quality management frameworks such as the Common Assessment Framework (CAF), yet their implementation does not automatically result in higher levels of quality management maturity or excellence. While CAF provides structured tools and principles, achieving sustained excellence requires embedding these practices into everyday organizational routines. In this sense, quality management maturity can be understood as a cumulative process reflecting the extent to which such practices are institutionalised over time (van Dooren et al., 2015; Zu et al., 2010). Empirical evidence suggests that the benefits of CAF increase with repeated implementation cycles (Moscon, 2025), and that quality management outcomes depend on the interaction of multiple CAF criteria rather than on isolated management practices (Moscon, 2026). External validation signals more advanced stages of maturity. However, only a subset of organizations succeeds in reaching this level, highlighting the need to better understand the conditions shaping different implementation trajectories.

A central factor shaping these trajectories is organizational culture, which influences how management practices are interpreted, enacted, and sustained (Alofan et al., 2020; Prajogo & McDermott, 2005). While culture operates at multiple levels, public sector organizational culture is particularly shaped by the interaction between internal organizational dynamics and broader administrative traditions (Painter & Peters, 2010; Peters, 2021). These institutional contexts embed assumptions about hierarchy, accountability, and managerial discretion, which in turn shape how quality management initiatives are understood and implemented (Painter & Peters, 2010; Ongaro, 2009). At the organizational level, culture can be understood as a set of shared assumptions and values that guide behaviour within an institution (Schein, 1992; Gimenez-Espin et al., 2012). Frameworks such as the Competing Values Framework provide a structured way of capturing these patterns, distinguishing between group, developmental, rational and hierarchical cultural orientations (Denison & Spreitzer, 1991). These conceptualizations highlight how organizational members interpret and enact managerial initiatives, including quality management practices.

Although quality initiatives may gradually influence organizational culture, prior research primarily treats culture as an antecedent due to its relative stability and resistance to short-term change (Hofstede et al., 1990; Baird et al., 2011; Prajogo & McDermott, 2005). In the context of CAF, culture is therefore understood as shaping rather than resulting from differences in quality management maturity.

Prior research further links specific cultural characteristics to the implementation of quality management. For example, formalized and stability-oriented cultures are associated with process control, while participatory and open cultures support continuous improvement (Lagrosen, 2002; 2003). At the same time, the relationship is complex and context-dependent, and misalignment between cultural patterns and quality management principles can hinder successful implementation (Gimenez-Espin et al., 2012; 2023; Zu et al., 2010). However,

existing studies have primarily focused on individual cultural dimensions or national patterns, offering limited insight into how these elements combine in shaping quality management maturity, particularly in the public sector. Addressing this gap requires a configurational perspective that captures the interaction between multiple cultural dimensions.

3. Research Design and Methods

3.1 Research Design and Analytical Approach

The study adopts a configurational approach using fuzzy-set Qualitative Comparative Analysis (fsQCA) to examine how combinations of organizational culture traits are associated with differences in quality management maturity in public sector organizations. fsQCA is particularly suited to this purpose because it captures causal complexity, including conjunctural causation, equifinality, and asymmetry (Ragin, 2000; 2008; Schneider & Wagemann, 2012), by identifying how conditions combine into configurations associated with an outcome rather than estimating the net effects of individual variables. The use of fuzzy sets further allows both the outcome and the conditions to be conceptualized as graded set memberships, reflecting the continuous nature of organizational culture and quality management maturity.

3.2 Data and Case Selection

The empirical analysis is based on survey data collected from public sector organizations through a structured questionnaire administered via SurveyMonkey between 23 March and 30 April 2025. The questionnaire gathered information on organizational culture, administrative context, and organizations' experience with CAF. Case selection followed a purposive strategy designed to ensure variation in both quality management maturity and administrative traditions, in line with QCA's emphasis on diversity and meaningful heterogeneity (Schneider & Wagemann, 2012). The final dataset includes organizations displaying different levels of CAF use, external validation, and implementation experience across multiple institutional contexts.

3.3 Measurement and Calibration

The outcome, **quality management maturity**, is conceptualized as membership in the set of organizations exhibiting sustained and externally validated quality management practices. Following the staged logic of CAF, maturity is operationalized based on three indicators: CAF use, frequency of implementation, and external validation through the CAF External Feedback / CAF Excellence Recognition. These elements are combined into a four-value fuzzy-set calibration capturing distinct stages of maturity, ranging from no use (0.00) to repeated externally validated implementation (1.00) (Table 1). Rather than assuming a continuous linear progression, the calibration captures qualitatively different stages of embeddedness, with external recognition signalling a particularly strong level of institutionalization.

Table 1: Calibration of the outcome: Quality management maturity

Level	Definition	Calibration
No maturity	No CAF use	0.00
Low maturity	Initial CAF use (1-2 cycles), no label	0.33
Moderate maturity	Repeated CAF use (≥3 cycles) or one label	0.67
High maturity	CAF label obtained more than once	1.00

Organizational culture is operationalized using the Competing Values Framework (Denison & Spreitzer, 1991), covering four cultural orientations: group, developmental, rational, and hierarchical culture. Each dimension is measured through Likert-scale items (1 = "not valued at all" to 7 = "highly valued"), adapted from established instruments in organizational performance studies (Quinn & Spreitzer, 1991; Zu et al., 2010; Kalliath et al., 1999) (Table 2) and calibrated into fuzzy sets using the direct method (Ragin, 2008) with thresholds at 2 (full non-membership), 4 (crossover), and 6 (full membership).

Table 2: Organizational culture items (Competing Values Framework)

Culture type	Items
Group culture	GC1 Participation, open discussion GC2 Empowerment of employees to act GC3 Assessing employee concerns and ideas GC4 Human relations, teamwork, cohesion
Developmental culture	DC1 Flexibility, decentralization DC2 Expansion, growth and development DC3 Innovation and change DC4 Creative problem-solving processes
Rational culture	RC1 Task focus, accomplishment, goal achievement RC2 Direction, objective setting, goal clarity RC3 Efficiency, productivity, profitability RC4 Outcome excellence, quality
Hierarchical culture	HC1 Control, centralization HC2 Routinization, formalization and structure HC3 Stability, continuity, order HC4 Predictable performance outcomes

Administrative traditions are treated as a contextual dimension rather than as causal conditions in the QCA model. Organizations are assigned to traditions based on their national context, following established European typologies (Kuhlmann et al., 2025), complemented by four perception-based indicators capturing key features of the administrative environment. Each indicator is measured using two or three items on a seven-point Likert scale (1 = "strongly disagree", 7 = "strongly agree") and, after computing the mean, calibrated into fuzzy sets using the direct method with thresholds set at 2 (full non-membership), 4 (crossover point), and 6 (full membership). These elements are used to support the interpretation of configurational patterns. To complement the outcome, the analysis includes a measure of perceived quality management maturity, derived from core dimensions of the CAF Excellence Recognition framework. The measure captures the organizations' internal assessment across key areas such as results orientation, citizen focus, leadership, process management, people engagement, innovation, partnerships, and social responsibility. Responses are collected on a seven-point Likert scale and aggregated into a composite score, which is calibrated as a fuzzy set using the direct method (2 / 4 / 6 thresholds). This allows for a comparison between externally validated maturity and internal organizational perceptions.

3.4 Analytical Procedure

All analyses were conducted in R using the *QCA* package. The procedure follows standard fsQCA steps (Ragin, 2008; Schneider & Wagemann, 2012). First, calibrated data were used to construct truth tables representing all logically possible configurations of the cultural conditions. Second, necessity and sufficiency analyses were conducted. A consistency threshold of 0.80 and a minimum frequency threshold of one case were used for the main sufficiency analysis. In line with the principle of causal asymmetry, the analysis was conducted separately for the presence and absence of the outcome. Robustness checks included alternative consistency thresholds, reduced model specifications, and alternative calibration anchors.

4. 4. Results

4.1 Descriptive Overview

The final analytical sample consists of 19 public organizations drawn from 13 countries and five administrative traditions. The cases cover different policy areas, levels of government, and organizational sizes. Most organizations are located at the federal/national (47.4%) or state/regional/provincial level (42.1%), and the largest organizational group consists of cases with 1,000–4,999 employees (47.4%). In terms of administrative traditions, Continental European Napoleonic cases account for 42.1% of the sample, followed by Central and Eastern European and South Eastern European organizations (21.1% each). The sample also shows substantial variation in CAF experience. CAF users represent 89.5% of the cases, while 10.5% are non-users. External

recognition also varies: 42.1% of organizations report no CAF label, 47.4% have obtained the label once, and 10.5% more than once. This variation covers all stages of the calibrated maturity measure, from no use to repeated external validation (Table 3).

Table 3: Outcome-related characteristics of the sample

	Categories	
CAF use	*Yes* 17 (89.5%)	*No* 2 (10.5%)
CAF label	*No* 8 (42.1%) *Yes, once* 9 (47.4%)	*Yes, more than once* 2 (10.5%)
CAF use frequency	*None* 2 (10.5%) *Once* 8 (42.1%) *Twice* 4 (21.1%)	*Three times* 3 (15.8%) *More than three times* 2 (10.5%)

The calibrated outcome spans all four qualitatively defined stages of quality management maturity (Table 4). Most cases are located in the intermediate range, with 31.6% classified as low maturity and 47.4% as moderate maturity, while only 10.5% of the sample fall into each of the two extremes (no maturity and high maturity). The cultural conditions also show substantial variation, although median values are relatively high, especially for rational and hierarchical culture, indicating that many organizations exhibit comparatively strong cultural profiles across multiple dimensions.

Table 4: Distribution of calibrated outcome

Quality management maturity	Fuzzy score	n	%
No maturity	0.00	2	10.5
Low maturity	0.33	6	31.6
Moderate maturity	0.67	9	47.4
High maturity	1.00	2	10.5

A moderate positive association is observed between CAF-based maturity and perceived maturity (r = 0.60), indicating partial, but not complete, alignment between maturity derived from CAF implementation and recognition and organizations' internal assessments of quality management development.

4.2 Analysis of Necessary Conditions

The necessity analysis provides only limited evidence for substantively meaningful necessary conditions (Table 5). Three cultural dimensions – group culture (0.926), rational culture (0.913), and hierarchical culture (0.939) – exceed the conventional consistency threshold of 0.90 (Ragin, 2008; Schneider & Wagemann, 2012). However, their relevance of necessity values remain comparatively limited, suggesting that these conditions have weak discriminating power. In other words, these cultural dimensions are broadly present across cases rather than uniquely associated with higher levels of quality management maturity. No negated condition reaches the threshold for necessity.

Table 5: Analysis of necessary conditions for quality management maturity

	Consistency (inclN)	Coverage (covN)	Relevance of necessity (RoN)
GC_fs	0.926	0.558	0.683
DC_fs	0.837	0.600	0.664
RC_fs	0.913	0.473	0.637
HC_fs	0.939	0.434	0.633
~GC_fs	0.375	0.890	0.692
~DC_fs	0.442	0.866	0.694
~RC_fs	0.332	0.914	0.712
~HC_fs	0.277	0.915	0.667

Notes: ~ = negation

4.3 Analysis of Sufficient Conditions for the Presence of the Outcome

The truth table for the presence of quality management maturity does not provide evidence of a robust sufficient pathway. The dominant configuration, characterized by the simultaneous presence of all four cultural dimensions, is by far the most frequently observed empirical pattern (n = 13), but reaches a consistency of only 0.727 (PRI = 0.536). This indicates that strong cultural profiles are widespread, yet do not systematically distinguish between higher and lower levels of maturity.

Two additional configurations approach or exceed the conventional consistency threshold. One configuration exceeds the threshold (incl = 0.844), but is supported by only a single case, while another comes close (incl = 0.798) but remains below the 0.80 benchmark and is supported by two cases. In both instances, empirical coverage is very limited.

Taken together, these results indicate that no substantively meaningful minimized solution can be retained for the presence of the outcome. Although some configurations reach relatively high consistency, their limited empirical representation does not provide sufficient support for retaining a stable and substantively meaningful solution.

4.4 Robustness Checks

Robustness checks confirm this finding. Alternative consistency thresholds, reduced model specifications, and alternative calibration anchors do not alter the overall pattern.

Lowering the consistency threshold to 0.75 does not alter the substantive conclusion. The dominant configuration remains below the revised threshold (incl ≈ 0.73), while configurations approaching it are supported by only one or two cases. Reduced model specifications and alternative calibration anchors produce comparable results, indicating that the absence of a stable sufficient pathway is not driven by a specific modelling choice

Alternative calibration anchors (2.5 / 4 / 5.5) confirm these results. Across all specifications, configurations with higher consistency are empirically sparse, while the most prevalent patterns continue to fall below the conventional sufficiency threshold.

4.5 Analysis of the Absence of the Outcome

In contrast to the absence of a sufficient pathway for the presence of the outcome, the analysis of the negated outcome reveals a clear and robust configurational structure (Table 6). Focusing on the reduced specification including group, rational, and hierarchical culture, logical minimization yields two solution paths:

1. low group culture combined with low rational culture, and
2. low rational culture combined with low hierarchical culture.

Both paths display high consistency (0.868 and 0.865) and acceptable PRI values, and the overall solution reaches a consistency of 0.820 with a coverage of 0.399, indicating an empirically meaningful configurational solution.

Table 6: Configurations associated with the absence of quality management maturity

	Solutions		
Conditions	**Path 1**	**Path 2**	**Core (parsimonious)**
Group culture	○		
Rational culture	○	○	○
Hierarchical culture		○	
Number of cases	3 (16, 19; 7)	3 (16, 19; 18)	-
Consistency	0.868	0.865	-
PRI	0.702	0.698	-
Raw coverage	0.391	0.329	-
Unique coverage	0.070	0.008	-
Overall solution consistency	**0.820**		

	Solutions		
Conditions	**Path 1**	**Path 2**	**Core (parsimonious)**
Overall solution coverage	**0.399**		

Note: ○ indicates the presence of low levels of a condition.

A key feature of the solution is the recurring presence of low rational culture, which appears in both paths and is also identified as the core condition in the parsimonious solution. This suggests that low rational culture is a recurring feature of the configurations associated with lower quality management maturity, reflecting weaker emphasis on performance orientation, goal clarity and results. More generally, the results point to a structured but parsimonious pattern, in which low rational culture combines with either low group or low hierarchical culture.

The identified configurational structure proves robust across alternative analytical specifications. Increasing the consistency threshold (to 0.85) does not alter the solution, and reduced model specifications yield comparable results, confirming the stability of the identified patterns. Across all specifications, low rational culture consistently remains a central component of configurations associated with the absence of the outcome.

4.6 Complementary Insights

The comparison between externally assessed and internally perceived maturity offers an additional perspective on the results. The two measures show a moderate positive association (r = 0.60), indicating that organizations with higher externally validated maturity also tend to report higher perceived maturity. At the same time, the relationship is not fully aligned, as several cases report relatively high perceived maturity despite comparatively low externally validated maturity. This suggests that internal development and external recognition do not always coincide.

Exploratory comparisons suggest that higher-maturity and lower-maturity cases occur across different administrative traditions. Perceived administrative characteristics also overlap across traditions, indicating that formal classifications may not fully capture how administrative contexts are experienced. Given the limited number of cases, these observations remain descriptive.

5. Discussion

This study examined whether specific configurations of organizational culture are associated with quality management maturity in public sector organizations, adopting a configurational perspective on culture within the quality management literature. Consistent with prior research, the findings provide only limited evidence of substantively meaningful necessary conditions. Although group, rational, and hierarchical culture approach or exceed the conventional consistency threshold for necessity, their comparatively limited relevance of necessity indicates weak discriminating power. These cultural characteristics appear to be widespread across the cases rather than uniquely associated with higher levels of quality management maturity. This finding aligns with configurational approaches (Ronen & Shenkar, 2013; Sousa & Voss, 2001; Prajogo & McDermott, 2005), which emphasize that organizational outcomes emerge from combinations of conditions rather than from individual factors considered in isolation.

Contrary to theoretical expectations, the analysis does not identify a stable sufficient configuration for the presence of quality management maturity. Prior research suggests that people-oriented and innovation-supportive cultures, particularly combinations of group and developmental culture, may facilitate the sustained adoption of quality management practices (Prajogo & McDermott, 2005; Baird et al., 2011). In the present analysis, however, these cultural orientations do not consistently distinguish organizations with higher CAF-based maturity from those with lower maturity. The widespread presence of comparatively strong cultural profiles across cases may partly explain their limited discriminating capacity. Thus, although supportive cultural characteristics may facilitate quality management implementation, they do not appear to be sufficient, either individually or in the configurations observed, for achieving higher levels of maturity.

By contrast, the analysis of the absence of the outcome reveals a clearer configurational pattern. Low rational culture appears in both pathways associated with lower quality management maturity, in combination with either low group culture or low hierarchical culture. This recurring pattern points to the relevance of performance orientation, goal clarity, and results focus for the consolidation of CAF-based quality management. Low rational culture becomes configurationally relevant when combined with weaknesses in

participation, collaboration, structure, or coordination. This finding complements prior research highlighting the importance of performance-oriented and coordination-related cultural characteristics for the effective implementation of quality management practices.

At the contextual level, the findings provide only limited evidence concerning the role of administrative traditions. Although institutional environments may shape how quality management practices are interpreted and implemented (Lagrosen, 2003; Mathews et al., 2001), cases combining relatively strong cultural profiles with low maturity are not concentrated within a single administrative tradition. Instead, they are observed across different institutional contexts. On the basis of the present cases, the absence of a sufficient cultural configuration for higher quality management maturity therefore cannot be attributed to one particular administrative tradition. However, this result should not be interpreted as evidence that administrative context is irrelevant, as the available empirical coverage does not permit a systematic comparison across traditions or countries.

The findings should be interpreted in light of the sample characteristics. Although the study covers 19 organizations from 13 countries and five administrative traditions, most countries and some traditions are represented by only a few cases. This limits the distinction between country-specific and administrative-tradition effects and reduces the empirical coverage of some configurations. The findings should therefore be viewed as configurational insights rather than generalizable country- or tradition-level relationships. Future research could further assess these patterns.

Overall, the findings indicate that quality management maturity cannot be adequately explained by individual cultural dimensions or by administrative context alone. Strong cultural profiles do not consistently distinguish organizations with higher maturity, whereas lower maturity is associated with specific combinations involving low rational culture. The moderate association between CAF-based maturity and perceived maturity further indicates that externally observable implementation and recognition do not fully coincide with organizations' internal assessments of their quality management development. Taken together, the results highlight the configurational and multidimensional nature of quality management maturity and the need to consider cultural conditions, implementation experience, and administrative context jointly.

Ethics Declaration: No ethical approval was required.

AI Declaration: AI-based tools were used solely as an assistive resource throughout the research process, supporting the author's work.

References

Alofan, F., Chen, S. and Tan, H. (2020) "National cultural distance, organizational culture, and adaptation of management innovations in foreign subsidiaries: A fuzzy set analysis of TQM implementation in Saudi Arabia", *Journal of Business Research*, 109, pp. 184–199. doi:10.1016/j.jbusres.2019.11.037.

Baird, K., Hu, K.J. and Reeve, R. (2011) "The relationships between organizational culture, total quality management practices and operational performance", *International Journal of Operations & Production Management*, 31(7), pp. 789–814. doi:10.1108/01443571111144850.

Christensen, T. and Lægreid, P. (2007) "The whole-of-government approach to public sector reform", *Public Administration Review*, 67(6), pp. 1059–1066. doi:10.1111/j.1540-6210.2007.00797.x.

Denison, D.R. and Spreitzer, G.M. (1991) "Organizational culture and organizational development: A competing values approach", *Research in Organizational Change and Development*, 5, pp. 1–21.

Do Nascimento Gambi, L., Boer, H., Gerolamo, M.C., Jorgensen, F. and Ribeiro Carpinetti, L.C. (2015) "The relationship between organizational culture and TQM", *International Journal of Operations & Production Management*, 35(10), pp. 1460–1484. doi:10.1108/IJOPM-12-2013-0563.

Ehrenberg, R.H. and Stupak, R.J. (1994) "Total quality management: Its relationship to administrative theory and organizational behavior in the public sector", *Public Administration Quarterly*, 18(1), pp. 75–98.

Gimenez-Espin, J.A., Jimenez-Jimenez, D. and Martinez-Costa, M. (2012) "Organizational culture for total quality management", *Total Quality Management & Business Excellence*, 24, pp. 678–692. doi:10.1080/14783363.2012.707409.

Gimenez-Espin, J.A., Martinez-Costa, M. and Jimenez-Jimenez, D. (2023) "Does culture matter for the EFQM model application?", *Total Quality Management & Business Excellence*, 34(3–4), pp. 440–467. doi:10.1080/14783363.2022.2068408.

Hofstede, G., Neuijen, B., Ohayv, D.D. and Sanders, G. (1990) "Measuring organizational cultures: A qualitative and quantitative study across twenty cases", *Administrative Science Quarterly*, 35(2), pp. 286–316. doi:10.2307/2393392.

House, R.J., Hanges, P.J., Javidan, M., Dorfman, P. and Gupta, V. (2004) *Culture, leadership, and organizations: The GLOBE study of 62 societies*, Sage, Thousand Oaks, CA.

Jancikova, A. and Brychta, K. (2009) "TQM and organizational culture as significant factors in ensuring competitive advantage", *Economics & Sociology*, 2(1), pp. 80–94.
Jugl, M. (2025) "Patterns of bureaucracy: Conceptualizing administrative traditions", *Journal of Public Administration Research and Theory*, 35, pp. 277–291. doi:10.1093/jopart/muaf012.
Kalliath, T.J., Bluedorn, A.C. and Gillespie, D.F. (1999) "A confirmatory factor analysis of the competing values instrument", *Educational and Psychological Measurement*, 59(1), pp. 143–158.
Kuhlmann, S., Wollmann, H. and Reiter, R. (2025) *Introduction to comparative public administration*. Cheltenham: Edward Elgar.
Lagrosen, S. (2002) "Quality management in Europe: A cultural perspective", *The TQM Magazine*, 14(5), pp. 275–283. doi:10.1108/09544780210439707.
Lagrosen, S. (2003) "Exploring the impact of culture on quality management", *International Journal of Quality & Reliability Management*, 20(4), pp. 473–487. doi:10.1108/02656710310468632.
Mathews, B.P., Ueno, A., Kekäle, T., Repka, M., Lopes Pereira, Z. and Silva, G. (2001) "European quality management practices: The impact of national culture", *International Journal of Quality & Reliability Management*, 18(7), pp. 692–707. doi:10.1108/EUM0000000005776.
Moscon, V. (2025) "Enhancing Public Sector Performance: A Systematic Review of the Common Assessment Framework", *International Journal of Business Research Management* (IJBRM), 16(2), pp. 44-63.
Moscon, V. (2026) "The relationship between the CAF criteria: an empirical investigation in European public sector organisations", *Total Quality Management & Business Excellence, 37*(10), pp. 833-849. doi:10.1080/14783363.2026.2689076.
Naor, M., Linderman, K. and Schroeder, R. (2010) "The globalization of operations in Eastern and Western countries", *Journal of Operations Management*, 28, pp. 194–205. doi:10.1016/j.jom.2009.11.001.
Ongaro, E. (2009) *Public management reform and modernization*, Edward Elgar, Cheltenham.
Painter, M. and Peters, B.G. (2010) *Tradition and public administration*, Palgrave Macmillan, Basingstoke.
Peters, B.G. (2021) *Administrative traditions*, Oxford University Press, Oxford.
Prajogo, D. and McDermott, C. (2005) "The relationship between total quality management practices and organizational culture", *International Journal of Operations & Production Management*, 25(11), pp. 1101–1122. doi:10.1108/01443570510626916.
Prajogo, D., Mena, C., Cooper, B. and Teh, P. (2022) "The roles of national culture in affecting quality management practices", *International Journal of Operations & Production Management*, 42(7), pp. 877–897. doi:10.1108/IJOPM-01-2022-0015.
Quinn, R.E. and Spreitzer, G.M. (1991) The psychometrics of the competing values culture instrument. In: Woodman, R.W. and Pasmore, W.A. (eds.) *Research in Organizational Change and Development*, JAI Press, Greenwich, CT.
Ragin, C.C. (2000) *Fuzzy-set social science*, University of Chicago Press, Chicago.
Ragin, C.C. (2008) *Redesigning social inquiry: Fuzzy sets and beyond*, University of Chicago Press, Chicago.
Ronen, S. and Shenkar, O. (2013) "Mapping world cultures", *Journal of International Business Studies*, 44, pp. 867–897.
Schein, E.H. (1992) *Organizational culture and leadership*, Jossey-Bass, San Francisco.
Schneider, C.Q. and Wagemann, C. (2012) *Set-theoretic methods for the social sciences*. Cambridge: Cambridge University Press.
Sousa, R. and Voss, C.A. (2001) "Quality management: Universal or context dependent?", *Production and Operations Management*, 10(4), pp. 383–404.
Tata, J. and Prasad, S. (1998) "Cultural and structural constraints on TQM implementation", *Total Quality Management*, 9(8), pp. 703–710.
Van Dooren, W., Bouckaert, G. and Halligan, J. (2015) *Performance management in the public sector*, 2nd edn, Routledge, London.
Zbaracki, M.J. (1998) "The rhetoric and reality of total quality management", *Administrative Science Quarterly*, 43(3), pp. 602–636.
Zu, X., Robbins, T.L. and Fredendall, L.D. (2010) "Mapping the critical links between organizational culture and TQM practices", *International Journal of Production Economics*, 123, pp. 86–106. doi:10.1016/j.ijpe.2009.07.009.

Influence of Participative Leadership on Worker Performance in a Hybrid Social Enterprise

Okuhle Mtilwa, Stanley Fore and Jephita Matande
Cape Peninsula University of Technology, Cape Town, South Africa

mtilwaok@gmail.com
fores@cput.ac.za
matandej@cput.ac.za

Abstract: Growing interest in corporate governance has spurred curiosity in hybrid social enterprises (HSEs), especially in developing economies, as businesses increasingly focus on social responsibility and ethics. These initiatives compound employee responsibilities, often beyond their formal contractual obligations. Consequently, the success of these hybrid social responsibilities necessitates a leadership style that inspires employees. The social nature of HSEs informed the Social Exchange Theory (SET). Using a mixed research methodology, the study seeks to unpack two primary issues abductively: firstly, revealing the impact of participative leadership style on employee performance, and secondly, unravelling the specific aspects of this leadership style that affect performance within HSEs. The research employs a single case study design focused on a non-governmental organisation in Cape Town, South Africa. Respondents were purposively selected to ensure rich, insightful data and research quality. The target population was 60 team members from four departments. The research instrument was a structured questionnaire containing quantitative and qualitative (open-ended) questions. Thematic content analysis was used for the qualitative data related to the first objective (identifying aspects), while descriptive statistics analysed the quantitative data for the second objective (assessing impact). The results demonstrate a significant positive relationship between participative leadership style and employee performance. Key findings indicate that a leader's education level (skills and knowledge) and decision-making capability are crucial aspects promoting performance. In contrast, demographic factors such as the leader's age, gender, and race were found to have no significant effect. This study contributes to leadership theory by advancing debates and providing practical guidance for leaders in HSEs on designing leadership approaches that enhance employee performance.

Keywords: Leadership, Employees, Hybrid social enterprise, Participative leadership

1. Introduction and Background

Societal dynamics and the growing emphasis on corporate social responsibility (CSR) have significantly evolved business conditions, transforming many organisations into hybrid social enterprises. These entities blend profit-making objectives with social mission goals- hybrid social entrepreneurship. This hybrid nature places additional obligations and workload burdens on leaders and employees, often extending beyond traditional contractual duties. In such complex environments where employee performance can be jeopardised, the role of leadership is paramount (Alghizzawi et al., 2024). Leaders must adopt styles that foster active engagement and participation. Long-standing literature on leadership excellence points to participative (or democratic) leadership as the core of enhancing employee performance (Muhiuddin, 1993), primarily because it inspires joint innovation (Kumar et al., 2024). While many debates reinforce this general notion (Riza et al., 2025), there is a distinct lack of literature that unpacks explicitly *which aspects* of participative leadership account for improved employee performance.

The research problem stems from organisational dynamics that current leadership research fails to address succinctly. Specifically, integrating CSR—a traditionally non-profit initiative—into profit-driven organisations creates new complexities for leaders. A systematic review by Doherty et al. (2014) reveals that tensions can erupt in hybrid firms as employees are often incentivised by financial gains and profitability (Powell et al., 2019). These leaders succeed by striking a delicate balance between profit motives and social needs. While studies in contexts like hybrid social entrepreneurship among farmers indicate that participatory leadership boosts performance due to its inclusivity, they often remain silent on the stylistic elements invoking this improvement. These findings align with quantitative studies (e.g., Alhasnawi et al., 2023) showing that participatory leadership enhances performance in budgeting by promoting goal clarity and commitment. Previous work (Somech, 2003; Dolatabadi & Safa, 2010; Bortoluzzi et al., 2014) posits that a leader's behaviour and performance directly influence employee behaviour and performance. However, these studies are often narrowly focused and lack specificity regarding the participative leadership style (Abu Orabi et al., 2024), limiting their generalizability within the HSE context and the African setting. This research heeds previous calls, such as from Girma (2016), for a more comprehensive and extensive examination of this phenomenon.

Furthermore, scant literature has sought to deconstruct the participative leadership-employee performance discourse to expose its precise impact (Pasricha et al., 2018). A significant contextual and geographical gap exists, as minimal research has examined this relationship within African HSEs. This under-research has restricted both theoretical understanding and practical mastery of the concepts, curtailing a contextualised appreciation of the phenomenon. Therefore, this study aims to address this gap by employing a mixed research methodology to explore and explain the interplay between participative leadership style and employee performance in this context.

Inspired by recommendations from Akpoviroro et al. (2018) to move beyond predominantly quantitative methodologies, this study has a two-pronged aim:

1. To investigate the aspects of participative leadership style that impact employee performance.
2. To assess the impact of participative leadership style on employee performance using a mixed-methods approach.

2. Research Questions and Objectives

This research seeks to address the following objectives:

- To understand the contribution of participatory leadership style to employee performance.
- To examine the impact of participative leadership style on employee performance.

The research seeks to answer the following questions:

- What aspects of the participative leadership style contribute to employee performance?
- What is the impact of participatory leadership style on employee performance?

3. Literature Review

3.1 The Theoretical Framework: Social Exchange Theory

This research adopts the Social Exchange Theory (SET) to investigate its core questions. SET is based on social reciprocity, where employees consciously or subconsciously weigh the net benefits of their relationship with their leader. It hypothesises that "*when leaders demonstrate consideration for their employees' ideas and opinions, employees reciprocate with higher commitment and dedication to organisational goals*" (Alhasnawi et al., 2023: 4). The theory positions leaders as relationship drivers, emphasising mutual exchanges, reciprocity, and interdependencies (Akpoviroro et al., 2018; Di Domenico et al., 2009) that lead to social harmony (Ahn & Bessiere, 2022). This resonates deeply with the social/humane aspect inherent in HSEs.

The choice of SET is justified by its extensive and successful application in leadership studies. For instance, Alarifi & Adam (2023) anchored their study on participatory leadership's role in employee creative performance in SMEs on SET. This research concurs with Wang et al. (2022) that SET offers a robust explanation for participatory leadership phenomena. The theory also aligns well with the four key aspects of participative leadership style examined in this study (delegation, collective action, question asking, shared goals). Furthermore, given that hybrid social entrepreneurship is a budding concept and practice in Africa, SET provides a fitting lens for understanding the social exchanges.

3.2 Defining Leadership and Leadership Styles

Leadership has been defined in a multitude of ways. Nanjundeswaraswamy and Swamy (2014) define it as a social control mechanism where the leader seeks followers' voluntary cooperation and performance to attain organisational objectives. This definition interprets the leader-follower relationship as fundamentally social (Kumar et al., 2024), making it highly interpretable through the SET lens. Similarly, Yukl (2008) and DuBrin (2010) define leadership as the ability to inspire confidence and provide support in a way that motivates a follower's self-will to work towards set goals. A common thread in these definitions is that employee (and thus organisational) performance is predicated on appropriately selecting and applying a suitable leadership style. Ironically, few studies have examined the most appropriate style for the unique context of HSEs.

Leadership styles—the approach a leader adopts to achieve goals through employee effectiveness (Baron & Parent, 2015)—are equally significant to the performance discourse (Pereira et al., 2020). Research presents many styles and theories (Thahier et al., 2014; Vidal et al., 2017; Amanambu, 2024), sometimes used interchangeably. This study focuses on four styles within the leader's behaviour, ideology, and attitudes towards

followers (Luthans, 1977; Kaur et al., 2024): authoritarian, bureaucratic, laissez-faire, and participative/democratic.

Table 1: The four leadership styles

Leadership style	Leader-follower relationship
Authoritarian	Leader-centred and dominated. This command environment relies on a leader`s confidence and skills (Amanambu, 2024; Alghizzawi et al., 2024). It causes short-term success but long-term failure.
Bureaucratic	Policy-driven. Both the leader and followers are subservient to policy. This curtails creativity as policies impede innovation.
Laissez faire	Employee-dominated, as the leader is dormant. Lack of guidance compromises creativity and employee performance (Abu Orabi et al., 2024).
Participative	Active joint decision-making between the leader and followers. It builds trust, confidence (Li et al., 2018) and employee creativity (Salahuddin, 2010; Warrilow, 2012; Alghizzawi et al., 2024).

3.3 Participative Leadership in Hybrid Social Enterprise

Participative leadership can manifest in two forms: direct and indirect. The former involves employees directly deciding, negotiating, and agreeing with the leader on their immediate tasks or environment. The latter refers to a collective bargaining approach using delegates to engage the leader (Dull, 2010). This style is an open engagement platform that diffuses traditional management hierarchies, placing leaders and followers on a more equal footing in decision-making (Wang et al., 2022). This inclusivity harnesses ideas from a broader range of participants, enriching ideation, though the leader typically retains ultimate decision-making authority.

Participative leaders provide a "bigger picture" or roadmap but avoid dictating tasks. Within this framework, employees are empowered to generate and share ideas. The leader offers input, support, and facilitation, fostering collaborative and complementary rather than competitive environments. A bibliometric analysis by Wang et al. (2022) confirms that many researchers defend the relevance of participative leadership, especially in HSEs. Cornelissen et al. (2021) found that leadership in a social business aids continual adaptation and helps members combine diverse aims and values into a common hybrid identity. Austin et al. (2006) qualify this by cautioning that adopting participative leadership should be sensitive to the HSE's specific growth stage.

3.3.1 Participative leader responsibilities

According to Akpoviroro et al. (2018), participatory leaders have the following responsibilities. Firstly, they communicate the broad picture, such as the company’s priorities and performance outcomes, as well as work units’ connections to the larger organisation. Secondly, the team collectively sets realistic goals, acceptable evaluation methods, and reward systems. Thirdly, talent development is promoted through task delegation. Fourthly, employees receive clear goals and support resources. Lastly, employees work in teams to design processes and accomplish tasks. This analogy does not depict any active role or contribution of followers.

3.3.2 Aspects of the participative leadership style

Extending Likert's (1961) seminal work, Akpoviroro et al. (2018) highlighted key aspects of participative leadership styles that form the foundational pillars for this research:

Delegation: The formal transfer of decision-making authority to lower levels. This engenders a sense of responsibility that compels creative thinking (Khassawneh & Elrehail, 2022) while ensuring employees enjoy the leader's presence and support (Windiana et al., 2024). It can sometimes be role-playing (stepping into the leader's shoes).

Collective action: Decision-making is preceded by a consultative process. For ease of administration, employees are grouped into teams assigned specific roles. This enhances peer-to-peer learning, bonding, problem-solving, and relationship building (Khassawneh & Elrehail, 2022).

Question Asking: Likert (1961) alluded to this as the "high standard principle." It stems from the goal clarity endeavour preoccupying participative leaders. Instructions must be clear to empower teams. This two-way process between leader and followers cultivates new ideas and promotes critical thinking (Li et al., 2018; Akpoviroro et al., 2018).

Shared Goals: Based on Likert's (1961) "decision-making principle," teams collaboratively set, cross-pollinate, and align goals (Akpoviroro et al., 2018). This cultivates a sense of belonging, trust, and ownership in employees

(Wang et al., 2022). The emphasis on the exchange of ideas, goals, and roles within these aspects further attests to the relevance of SET as a sound explanatory theory for this phenomenon.

3.4 Research Context and Setting

Hybrid social entrepreneurship is a growing phenomenon in Africa and South Africa. African organisations increasingly embrace the hybrid social enterprise model, hence the increasing need for a participative leadership style. (Akpoviroro et al., 2018). Some firms are relatively small community-based entities extending their traditional profit-making scope to providing fundamental needs in the education (skill development and literacy), health, and housing sectors. Their concentration is frequently on specific disadvantaged populations, such as children and youth, or assisting women or strengthening a particular neighbourhood. Many social enterprises in the country have improved the quality of their goods or services and developed business strategies over time (Karanda & Toledano, 2012).

3.5 Participative Leadership: Impact on Employee Performance

Embracing decision-making inclusivity encourages multidimensional views that stimulate optimising resources (material, human, intellectual), thereby boosting employee and organisational performance. Through an enhanced sense of responsibility and motivation, HSEs enjoy significant staff commitment. The long-run effects include improved employee skills, experience, exposure, and productivity (Akpoviroro et al., 2018). A high-trust, interactive working environment augments social capacity, catering to overall employee wellbeing—emotional, psychological, professional, and social needs (Alsubaie, 2021). This is particularly crucial in HSEs where employees often shoulder extra responsibilities; participative leadership can raise morale, foster innovation, and improve work-life quality (Khassawneh & Elrehail, 2022). Bass and Bass (2009) and Crane and Glozer (2014) argue that employees add value where they feel valued, especially in environments free from coercion.

Conversely, participative leadership can be time-consuming, particularly in its initial stages. Employees in HSEs might face two challenges: it's a relatively new phenomenon, and can constitute additional work. The extended decision-making and consensus-building process (Kaur et al., 2024) can sometimes affect employee motivation. Furthermore, the process is not always perfectly inclusive, as the majority view can prevail at the expense of the minority, potentially sparking divisions and resentments if not carefully managed. Its effectiveness is also vulnerable to cultural complexity (Muhiuddin, 1993).

3.6 Research Methodology

This abductive research is both exploratory (unearthing aspects of participative leadership) and explanatory (assessing their impact). An interpretivist approach was used for the first objective to derive value-laden, shared meanings from participants. A positivist paradigm (Mackenzie and Knipe, 2006) was used to obtain value-free insights. Due to time constraints, a cross-sectional study was conducted.

A single case study research design was adopted to provide detailed, context-specific insight. Scholars like Baron and Parent (2015), Wang et al. (2022), and Alhasnawi et al. (2023) have emphasised that context is crucial in participative leadership research. The study population was all HSEs in South Africa, with the target population being all such entities in Cape Town. The absence of a definitive database made precise determination impossible.

Purposive sampling was used to select one HSE in Cape Town. The selection criteria required the entity to be constituted by employees and leaders with hybrid responsibilities (involved in both profit-making and CSR). The chosen entity had 60 staff across four departments (finance, clinical, production, and administration) who participated in both aspects of the enterprise. Other firms were excluded if they had distinct structures separating profit from social functions. This choice aligns with the single case study design (Kumar, 2012). While a multiple case study could have been considered given the small sample size (Jackson, 2003), a single case was chosen to extract deep, case-specific data and insights. The mixed-methods approach, where quantitative and qualitative data complement each other, also justifies focusing on a single, information-rich case for in-depth analysis.

The mixed research methodology was employed to address the two objectives. Quantitative methods gathered data on the impact of participative leadership, while qualitative methods gathered data on the specific aspects that lead to performance. Data was collected from mid-level leaders and general team members using a multifactor leadership questionnaire. This instrument had two sections: a quantitative section with closed-ended Likert-scale questions and a qualitative section with open-ended questions (Bazeley, 2018). This approach was adopted because most previous research is explanatory and does not delve into the specific aspects

influencing performance, directly addressing the identified research gap and following recommendations from Akpoviroro et al. (2018). A similar approach was used by Gil-Cordero et al. (2023) in a study on participative leadership in tourism.

Descriptive data analysis was conducted on the quantitative data to detect trends (Bazeley, 2018), while thematic content analysis was performed on the qualitative data to reveal key themes. Questionnaire data were coded into a Microsoft Excel spreadsheet for analysis and conversion into illustrations, tables, graphs, and charts. Qualitative data was loaded into Atlas.TI software for coding, categorisation, and theme development.

To ensure research quality, several measures were taken. Confidentiality was maintained through respondent anonymity, and no biometric information was collected. Test-retest reliability assessment was conducted via a pilot study with 3 participants, confirming the research's reliability. Both construct and external validity were ensured by selecting a suitable case study and involving participants directly engaged in participative leadership. Informed consent was obtained from the case study authorities, and all respondents participated voluntarily after being informed of their rights and choices.

4. Findings and Discussions

Sixty questionnaires were distributed, yielding a high response rate of 83%. According to Seo & Park (2018), a response rate above 50% enhances study quality as well as the SET.

4.1 Work Experience of the Respondents

Respondents were asked about their work experience to gain insight into respondents' exposure to leadership approaches. Respondents` work experience ranges from 1 to 16 years, with most having less than 5 years. The figure showed a significant and diverse work experience, indicating the quality of their responses.

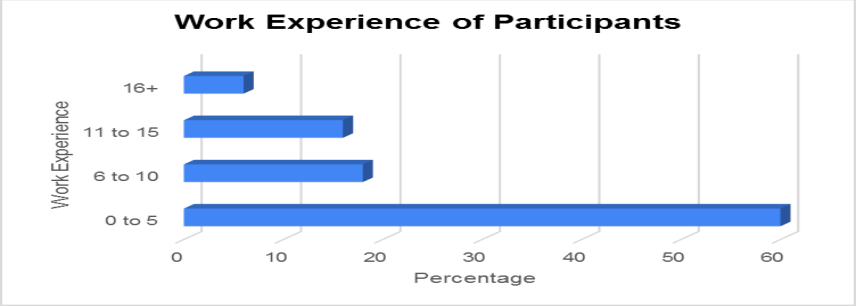


Figure 1: Respondents' work experience

4.2 Participative Leadership Aspects

4.2.1 Delegation

Respondents were asked about their role in decision-making in HSEs. About 86% indicated that they are active participants. This practice in the HSE is in tandem with Alghizzawi et al., (2024)The definition of participative leadership. Participants corroborated by stating, "*… we share our experiences, not just personal…*". This vindicates the application of the leadership style in the HSE.

Respondents were asked about mentorship and training programmes. The results showed that 100% of employees were mentored. Of these, 58% were formal while the rest were informal. This improves employee effectiveness, HSE success, and competitiveness (Ofobruku & Nwakoby, 2015; Mayfield & Mayfield, 2007; Pereira et al., 2020). However, 42% informal mentorship demonstrates poor mentorship protocols in HSEs.

Three questions were asked to determine how leaders closely observe and support employees after delegation and intervene in poor performance. Figure 2 below shows the results.

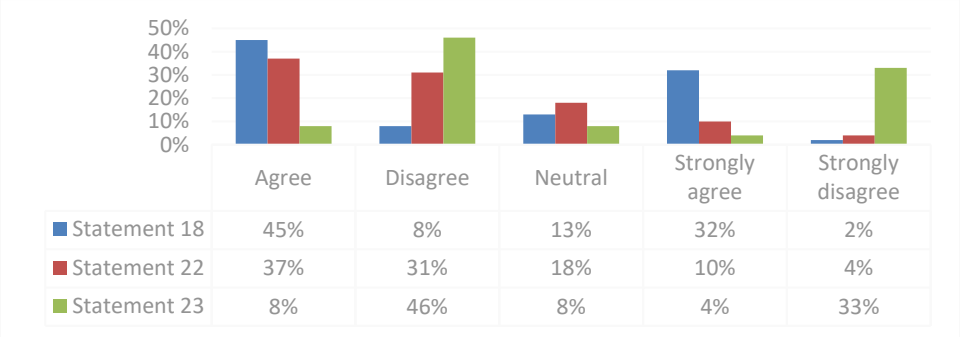


Figure 2: Employee support post delegation

Almost 77% either agree or strongly agree that they closely monitor employee performance. Further, 47% agreed they support subordinates. At the same time, 79% intervene to improve performance. This implies that employees in HSE are empowered to work without supervision, and assistance is offered when needed. Leaders barely intervene if all is well. Three questions corroborated this by investigating how HSE participative leaders perceive and treat employees. The findings are displayed in Figure 3 below.

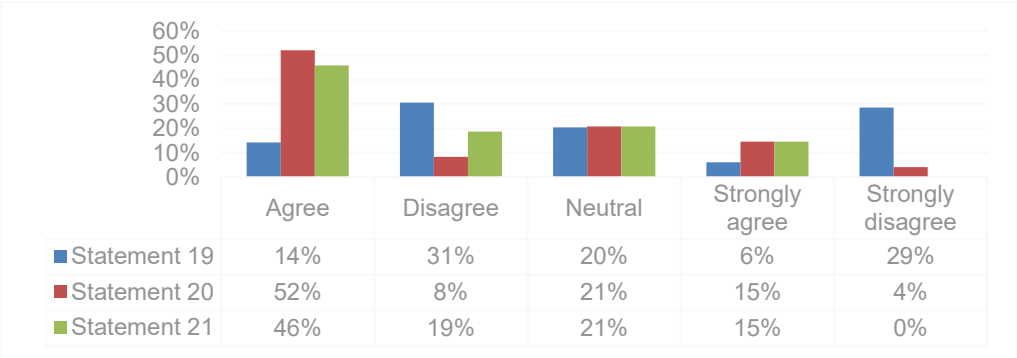
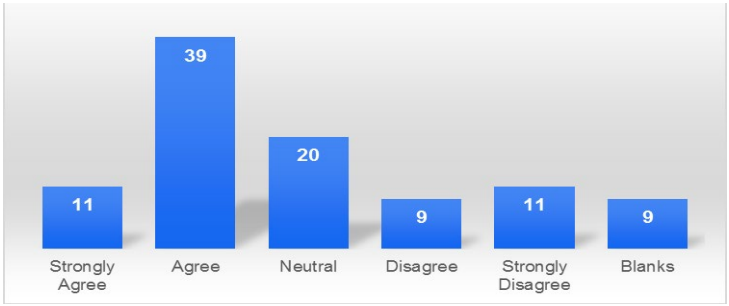


Figure 3: Leader perceptions of employees

About 60% perceive employees as committed and hardworking, while 67% agree they work with minimum supervision. Also, 50% agree that they feel empowered. This denotes that the staff is self-driven and capable.

4.2.2 Collective action

Questions were asked to assess the level of collective action in the HSE. Respondents` response to a question on leader-employee collaboration during execution is shown in Figure 4 below.



3.

Figure 4: Employee collaboration

Figure 4 above shows moderate collaboration between leaders and employees. This is low compared to collaboration in decision-making. This is possibly because employees feel confident and empowered early in the project, hence their independence. Further questions were asked to determine how employees feel about this level of autonomy. The responses are shown in Figure 5 below.

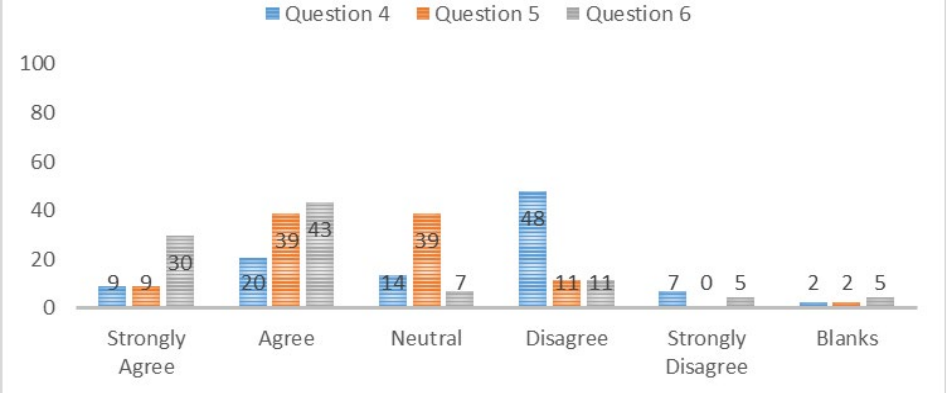


Figure 5: Employee perception of leadership style

The results show that the majority prefer participatory leadership to authoritarian leadership. Also, 73% (agree and strongly agree) to be involved in decision-making related to their tasks. Research participants indicated they dislike "*… being told what to do*". This shows that workers require clear direction early. This reduces the leader`s role during execution. Further questions examined the reward expectations for employees' extra responsibilities in HSEs. The results show that about 84% either agree or strongly agree that they expect a reward lest they feel exploited. This justifies a strong need for leaders to engage employees on their expectations, which may improve motivation and performance.

4.2.3 Question asking

Participative leadership also involves clarity of objectives by allowing questions. Respondents were asked about the leaders' knowledge level and ability to clarify issues. The results are shown in Figure 6 below.

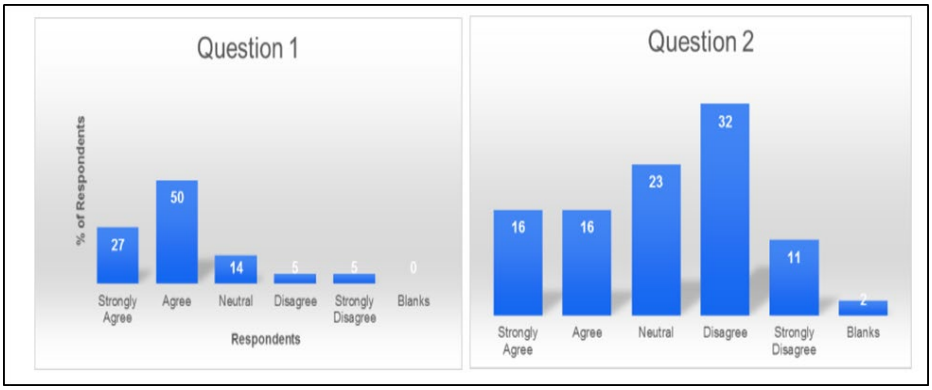


Figure 6: Leader`s knowledge and clarity

About 77% strongly agree that a leader must clarify the questions. However, they do not expect the leader to know everything. This indicates that employees see room for their contribution and actively participate. Also, leaders co-construct and define the project direction- an essential participative leadership trait.

4.2.4 Shared goals

Statement 8: A leader who consults with everyone is more powerful.

Statement 11: A leader must not consult on everything; otherwise, they become powerless.

Respondents were asked about the issue of shared goals between the leader and employees and whether leaders feel threatened by it. As shown in 7 below, three-quarters agreed that consultation is needful. Also, 52% believe that a leader who consults is strong. This is commendable as it confirms findings by Cornelissen et al. (2021).

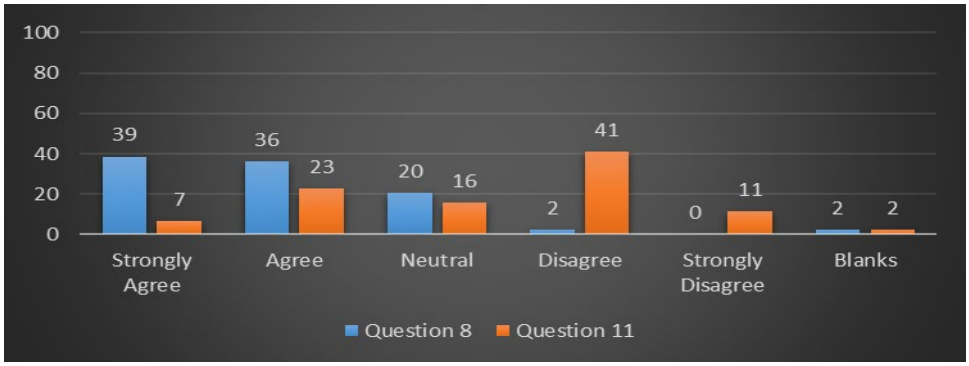


Figure 7: Leader`s strength through shared goals.

4.3 Impact on Employee Performance

Respondents were asked about the performance outcome of participative leadership. Figure 8 below shows the results.

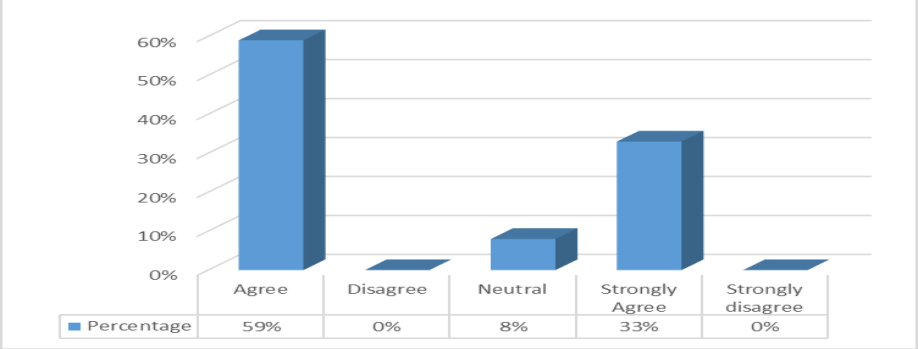


Figure 9: Employee performance.

59% and 33% agree and strongly agree that leadership improves employee performance. Further, 71% and 77% agree that it enhances employee reasoning and understanding, respectively.

Furthermore, qualitative questions sought to criticise the participative leadership style. Table 2 illustrates the results.

Table 2: Participative leadership style and employee performance.

Positive	**Negative**
Employees feel heard and supported.	Despite collective responsibility, the executive holds the leader accountable for failure.
Helps employees understand the task at hand.	Team members' differences and problems with each other lengthen the consultative process.
Expands and enhances the leader-subordinate relationship.	An urgent decision cannot be made without upsetting team members, even if a business opportunity arises.
Organisational productivity is boosted.	Engagements with less skilled employees may not yield meaningful outcomes.
Helps employees recognise their self-worth.	The Decision-making process can take longer as it relies on every team member.
Encourages teamwork and workplace collaboration.	Some team members get frustrated as the strong team members take on most of the responsibilities and become completely overwhelmed.
Builds employee decision-making confidence	Not every employee is a team player.
Employee empowerment through employee capacity building.	
Employees' work responsibility is enhanced.	

These findings support Khassawneh & Elrehail (2022) and Windiana et al. (2024), who observed that employee confidence boost is one key benefit of participative style.

5. Limitations and Future Research

This study is cross-sectional due to time constraints, yet it acknowledges that the relationship between participative leadership and employee performance might be better understood through a longitudinal design. Future studies could measure changes in performance levels over time. The research also acknowledges that the sample size, sufficient for this deep case analysis, could be larger for greater generalizability. Future research could add value by conducting multiple case studies across different HSEs to generate broader insights. While SET was a robust theoretical framework for this study, other theories, like Social Learning Theory, could investigate aspects such as what team members learn from leaders and each other through mentorship and training, adding further nuance to the debate.

6. Conclusions

This research successfully investigated the aspects of participative leadership that contribute to employee performance and evaluated its overall impact within a hybrid social enterprise. Using social exchange theory and a mixed-methods methodology, data were collected via questionnaire and analysed using MS Excel and Atlas. ti. The findings indicate that work integration within and between teams/departments promotes performance through collaborative experiences for problem-solving. Thus, collective action is a key aspect driving high performance. Further, employee consultation, mentorship, and training unite teams to work towards collectively determined goals. The quantitative and qualitative results strongly corroborate each other, confirming a positive impact of participative leadership on performance. These findings reinforce debates on participative leadership style and its effect on employee performance. In addition, practitioners in hybrid social enterprises, specifically leaders, find it helpful to guide them in improving employee performance. A few limitations of the research were cited due to its cross-sectional nature. Some suggestions for the future include longitudinal and adopting a multi-case study research design to improve the sample size and generalisability.

Ethical Declaration: The paper is derived from a master's research at a local University. The Ethical Committee from the University issued a certificate of clearance granting permission for the study to be undertaken.

AI Declaration: Grammarly and DeepSeek were only used to edit the paper's language and compile the reference list in Harvard style.

References

Abu Orabi, T., Almasarweh, M. S., Qteishat, M. K., Qudah, H. A., & AlQudah, M. Z. (2024). Mapping Leadership and Organisational Commitment Trends: A Bibliometric Review. In *Administrative Sciences* (Vol. 14, Issue 8). Multidisciplinary Digital Publishing Institute (MDPI). https://doi.org/10.3390/admsci14080171

Ahn, Y. J., & Bessiere, J. (2022). The Role of Participative Leadership in Empowerment and Resident Participation. *Sustainability (Switzerland)*, *14*(18). https://doi.org/10.3390/su141811223

Akpoviroro, K., Ismaila Bolarinwa, K., & Olalekan Owotutu, S. (2018). *Effect Of Participative Leadership Style On Employee's Productivity*.

Alarifi, G., & Adam, N. A. (2023). The Role of Participatory Leadership and Employee Innovative Behaviour on SMEs' Endurance. *Sustainability (Switzerland)*, *15*(3). https://doi.org/10.3390/su15032740

Alghizzawi, M., Megdadi, Y., Al Shibly, M. S., Alkhlaifat, B. I., Alzeaideen, K., & Ali, M. (2024). The Impact of Leadership Style on Improving Performance: A Comparative Approach. In *Studies in Systems, Decision and Control* (Vol. 528, pp. 1341–1354). Springer Science and Business Media Deutschland GmbH. https://doi.org/10.1007/978-3-031-56586-1_97

Alhasnawi, M. Y., Mohd Said, R., Mat Daud, Z., & Muhammad, H. (2023). Enhancing managerial performance through budget participation: Insights from a two-stage A PLS-SEM and artificial neural network approach (ANN). *Journal of Open Innovation: Technology, Market, and Complexity*, *9*(4). https://doi.org/10.1016/j.joitmc.2023.100161

Amanambu, U.E. (2024). Effective Leadership: A Paradigm For Church Growth In The 21st Century Nigeria: An Ethical Submission. Journal of African Studies and Sustainable Development, 7(2).

Austin, J., Stevenson, H. and Wei–Skillern, J. (2006) 'Social and commercial entrepreneurship: same, different, or both?', Entrepreneurship Theory and Practice, 30(1), pp. 1–22.

Baron, L. and Parent, É. (2015) 'Developing authentic leadership within a training context: Three phenomena supporting the individual development process', Journal of Leadership & Organisational Studies, 22(1), pp. 37–53.

Bass, B.M. and Bass, R. (2009). The Bass Handbook of Leadership: Theory, Research, and Managerial Applications. Simon & Schuster.

Bazeley, P. (2018) '"Mixed Methods in my Bones": Transcending the Qualitative-Quantitative Divide', International Journal of Multiple Research Approaches, 10(1).

Bortoluzzi, G., Caporale, L. and Palese, A. (2014) 'Does participative leadership reduce the onset of mobbing risk among nurse working teams?', Journal of Nursing Management, 22(5), pp. 643–652.

Cooper, D. and Schindler, P. (2008) 'Experiments', Business Research Methods, pp. 242–265.

Cornelissen, J., Höllerer, M.A. and Seidl, D. (2021) 'What theory is and can be: Forms of theorising in organisational scholarship', Organisation Theory, 2(3), p. 26317877211020328.

Crane, A. and Glozer, S. (2016) 'Researching corporate social responsibility communication: Themes, opportunities and challenges', Journal of Management Studies, 53(7), pp. 1223–1252.

Di Domenico, M.L., Tracey, P. and Haugh, H. (2009). The dialectic of social exchange: theorising corporate-social enterprise collaboration. *Organization Studies*, **30**, pp. 887–907.

Doherty, B., Haugh, H., & Lyon, F. (2014). *Social Enterprises as Hybrid Organizations: A Review and Research Agenda**. https://doi.org/10.1111/(ISSN)1468-2370/homepage/teaching learning

Dolatabadi, H.R. and Safa, M. (2010) 'The effect of directive and participative leadership style on employees' commitment to service quality', International Bulletin of Business Administration, 9(1), pp. 31–42.

DuBrin, A.J. (2010). Impression Management in the Workplace: Research, Theory and Practice. Routledge.

Dull, M. (2010) 'Leadership and organisational culture: Sustaining dialogue between practitioners and scholars', Public Administration Review, 70(6), pp. 857–866.

Gil-Cordero, E., Ledesma-Chaves, P., Ortega-Gutierrez, J., & Han, H. (2023). Organisational value and participatory leadership for sustaining the competitive advantages of hospitality and tourism companies. *Humanities and Social Sciences Communications*, *10*(1). https://doi.org/10.1057/s41599-023-01881-x

Girma, A. (2016). Factors Influencing Employee Retention in Public Organisations in Ethiopia: The Case of Addis Ababa Institutions (Doctoral dissertation, St. Mary's University).

Jackson, D.L. (2003) 'Revisiting sample size and number of parameter estimates: Some support for the N: q hypothesis', Structural Equation Modelling, 10(1), pp. 128–141.

Karanda, C. and Toledano, N. (2012) 'Social entrepreneurship in South Africa: A different narrative for a different context', Social Enterprise Journal, 8(3), pp. 201–215.

Kaur, H., Haque, A. U., & Gkasis, P. (2024). The Impact of Varying Styles of Leadership on Team Dynamics and Project Success. *Forum Scientiae Oeconomia* •, *12*(3). https://doi.org/10.23762/F

Khassawneh, O., & Elrehail, H. (2022). The Effect of Participative Leadership Style on Employees' Performance: The Contingent Role of Institutional Theory. *Administrative Sciences*, *12*(4). https://doi.org/10.3390/admsci12040195

Kowo, S., Sabitu, O. and Adegbite, G. (2018) 'Influence of competitive strategies on corporate performance of small and medium enterprises: A case from Nigeria', Agricultural and Resource Economics: International Scientific E-Journal, (4, №3), pp. 14–33.

Kumar, N., Wang, C., & Liu, Z. (2024). Enabling creativity: the interplay of participative leadership, coworkers' knowledge sharing behaviour and employees' creative idea validation. *Leadership and Organisation Development Journal*, *45*(6), 1011–1027. https://doi.org/10.1108/LODJ-09-2023-0501

Kumar, P. (2012). The Economics of Ecosystems and Biodiversity: Ecological and Economic Foundations. Routledge.

Kumar, S., Mohri, M. and Talwalkar, A. (2012) 'Sampling methods for the Nyström method', The Journal of Machine Learning Research, 13(1), pp. 981–1006.

Li, G., Liu, H., & Luo, Y. (2018). Directive versus participative leadership: Dispositional antecedents and team consequences. *Journal of Occupational and Organisational Psychology*, *91*(3), 645–664. https://doi.org/10.1111/joop.12213

Likert, R. (1961). New Patterns Of Management.

Luthans, F. and Stewart, T.I. (1977) 'A general contingency theory of management', Academy of Management Review, 2(2), pp. 181–195.

Mackenzie, N. and Knipe, S. (2006) 'Research dilemmas: Paradigms, methods, and methodology', Issues in Educational Research, 16(2), pp. 193–205.

Mayfield, J. and Mayfield, M. (2007) 'The effects of leader communication on a worker's intent to stay: An investigation using structural equation modelling', Human Performance, 20(2), pp. 85–102.

Muhiuddin, K.M.G. (1993) 'Investment Management of Interest-free Banking System: A Study of Islami Bank Bangladesh Limited', Journal of Chittagong University Studies (Commerce), 9(1), pp.18–32.

Nanjundeswaraswamy, T.S., Swamy, D.R. and Nagesh, P. (2020) 'Leadership Styles In Mediating The Relationship Between Quality Of Work Life And Employee Commitment', International Journal for Quality Research, 14(2).

Ofobruku, S.A. and Nwakoby, N.P. (2015) 'Effects of mentoring on employees' performance in selected family businesses in Abuja, Nigeria', مجلة الاقتصاد السنغافوري الأعمال و الدراسات الإدارية, 51(2681), pp.1–22.

Pasricha, P., Singh, B. and Verma, P. (2018) 'Ethical leadership, organic organisational cultures and corporate social responsibility: An empirical study in social enterprises', Journal of Business Ethics, 151, pp.941–958.

Pereira, L.J., Pereira, C.V., Murata, R.M., Pardi, V. and Pereira-Dourado, S.M. (2020) 'Biological and social aspects of Coronavirus Disease 2019 (COVID-19) related to oral health', Brazilian Oral Research, 34, p.e041.

Powell, M., Gillett, A., & Doherty, B. (2019). Sustainability in social enterprise: hybrid organising in public services. *Public Management Review*, *21*(2), 159–186. https://doi.org/10.1080/14719037.2018.1438504

Riza, M. F., Hutahayan, B., & Chong, H. Y. (2025). Fostering high-performing organisations in higher education: the effect of participative leadership, organisational culture, and innovation on organisational performance and commitment. *Cogent Education*, *12*(1). https://doi.org/10.1080/2331186X.2024.2448884

Salahuddin, M.M. (2010) 'Generational differences impact leadership style and organisational success', Journal of Diversity Management (JDM), 5(2).

Seo, E.J. and Park, J.W. (2018) 'A study on the effects of social media marketing activities on brand equity and customer response in the airline industry', Journal of Air Transport Management, 66, pp.36–41.

Somech, A. (2003) 'Relationships of participative leadership with relational demography variables: a multi-level perspective', Journal of Organisational Behaviour, 24(8), pp.1003–1018.

Thahier, R., Ridjal, S. and Risani, F. (2014) 'The Influence Of Leadership Style And Motivation Upon Employee Performance In The Provincial Secretary Office Of West Sulawesi', International Journal of Academic Research, 6(1).

Vidal, G.G., Campdesuñer, R.P., Rodríguez, A.S. and Vivar, R.M. (2017) 'Contingency theory to study leadership styles of small businesses owner-managers at Santo Domingo, Ecuador', International Journal of Engineering Business Management, 9, p.1847979017743172.

Wang, Q., Hou, H., & Li, Z. (2022). Participative Leadership: A Literature Review and Prospects for Future Research. In *Frontiers in Psychology* (Vol. 13). Frontiers Media S.A. https://doi.org/10.3389/fpsyg.2022.924357

Windiana, W., Fadillah, E. N., & Nugraha, M. I. (2024). A Bibliometric Review Of Research On Participative Leadership Theory In Education: Science Mapping The Literature, 1926-2023. *Journal of Economic Development and Village Building*, *2*(2), 68–90.

Yukl, G. (2008) 'How leaders influence organisational effectiveness', The Leadership Quarterly, 19(6), pp.708–722.

Exploring the Alignment of Internal and External Branding: A Grounded Theory Study of Leadership in a South African Organisation

Vinessa Naidoo
Tshwane School for Business and Society, Tshwane University of Technology, Pretoria, South Africa

NaidooV@tut.ac.za

Abstract: Branding has become essential for organisations to achieve competitive advantage. This research explores how leadership impacts the alignment of internal and external branding within a South African organisation. A qualitative Grounded Theory Method was used to understand the lived experience and perceptions of organisational leaders. Data was collected through unstructured interviews of ten leaders within a large motor retail organisation along with observations, field notes and organisational documents. Using open, axial and selective coding via NVivo 9, key themes and categories were identified. The results indicate that leadership has a significant impact on the development of brand alignment through Communication, Organisational Culture, Employee Engagement and Value Congruence. The results also illustrate the importance of leaders in shaping the brand image of an organisation by establishing a level of trust among employees, creating an environment that reinforces the organisational values of the organisation and facilitating consistent communication at all levels of the organisation. Furthermore, continuing the commitment to leadership will create a sense of ownership among employees for the brand and support the translation of strategic brand objectives into everyday operations of the organisation. The study produced a central construct, which presents Leadership as the driving force behind the effective integration of Internal and External Branding. Based on the findings of this study, a Leadership and Brand Alignment Model (LBAM) was created to combine both empirical insights and theoretical constructs. The study contributes to theory by offering a novel model of brand alignment and extends the limited body of research on internal branding and leadership in South Africa. Practically, the findings emphasise the need for leaders to actively embed brand values within organisational processes to ensure consistency between internal experiences and external brand promises. The proposed model offers organisations a process that can help improve leadership practices, increase the degree to which employees align with organisational values, and reinforce longer-term organisational performance, as well as develop a sustainable competitive advantage.

Keywords: Branding, Leadership, Organisational culture, Employee engagement, South Africa, Leadership and Brand Alignment Model (LBAM)

1. Background

Corporate branding has become one of the key strategic priorities for organizations that are looking to create sustainable competitive advantage and superior performance (Davis, 2002; Andersen et al., 2023). Internal branding and employee experience are now strongly linked to organisational performance and strategic brand success (Prashar and Maity, 2024; Thokoa et al., 2022). The corporate brand is more than just product-related elements (symbols, logos, trademarks, etc.) and includes the organization's identity, values, and relationships with stakeholders (Aaker, 1996; Nwekeala, 2026; Haddad, 2024). In addition, the corporate brand is not exclusively built through external communications, but it is ingrained in employees' day-to-day experiences of and interactions with the organization (Ind, 1997).

Employees play a significant role in transforming brand promises into customer experiences (Naidoo, 2013). Therefore, they are often seen as the key facilitators of an organisation's brand (Sartain 2005; Vijayalakshmi et al., 2025). Another concept closely related to internal marketing is internal branding. Internal branding means the way in which an employee understands, interprets and experiences their organisation's brand (Oakner 2004). Internal branding supports and helps employees to be better equipped to act in line with the organisation's brand identity by placing brand values firmly in employees' heads and hearts (Kinnunen, 2025).

Despite the importance of internal branding, many organisations experience a misalignment between their internal branding and the way they communicate their brand to the external market (Naidoo & Ukpere, 2012). Employees frequently experience a disconnect between how the organisation communicates to the external market and how they experience their organisation's workplace (Turpin 2003). Misalignment results in diminished employee engagement, lower employee morale and inconsistent service delivery, which can result in decreased organisational performance (Naidoo, 2012). As stated by Sartain (2005), the behaviour of employees "makes or breaks the brand". Therefore, organisations that do not have a strong approach to internal branding could ultimately diminish the success of their external branding efforts.

Today, employees of an organisation are increasingly seen as important for understanding and living the brand to customers every day (Smith & Hanstead, 2004). Organisational Culture is Important for Supporting the Alignment between Internal and External Branding. A strong and cohesive organisational culture lays the foundation for sharing values and behaviours, which allows employees to internalise and enact the brand consistently (Onwioduokit and Moavodi, 2026). As Alloza et al. (2004) point out, alignment between an organisation's culture and brand identity is essential for building corporate reputation through consistency of "what is said" with "what is done".

The process of alignment is strongly dependent on leadership ability (Naidoo & Ukpere, 2012). Through their ability to influence workplace culture, inform employees about brand values, and influence employee actions, leaders have a significant impact on employee behaviour (Tshatshu et al., 2026). According to Ulrich and Smallwood (2000), effective leaders live out the brand and they communicate to employees how to deliver a consistent brand experience to customers. Through their decisions and actions, leaders help shape employee understanding and connection with the brand, (Naidoo, 2013. Leaders thus create a context of meaning and direction for employees to connect with and support the brand (Mitchell, 2002).

This research bridges the void by evaluating leader's experiences and perceptions regarding brands from their perspective as leaders at various South African organisations. In particular, it investigates leaders' leaders' brand-related experiences and how they lead to greater coherence between internal and external branding of their organisations. This research develops a conceptual model that incorporates leaders, organisational culture, and employee engagement to promote brand alignment. The study provides both theoretical insights and practical recommendations for organisations on how to achieve greater alignment between their promised and their delivered products/services.

2. Methodology

2.1 Research Design

This research was conducted in a large motor retail companyin South Africa (Naidoo, 2013). A case study method was implemented to obtain an in-depth understanding of branding practices in a real-life organisational setting.

2.2 Sampling

Purposive sampling methods and theoretical sampling methods were implemented to select respondents who were directly involved in branding decisions and/or leadership. There were 10 respondents in the sample including directors and managers. Data collection continued, until theoretical saturation was reached, which was determined when no new themes were identified from the data.

2.3 Data Collection

Qualitative data were collected using multiple qualitative data collection methods to achieve richness and triangulation (Naidoo, 2013). The three methods of data collection that were used were unstructured in-depth interviews, participant observations, and/or analysis of organisational documents. The use of interviews provided participants with the opportunity to share their experiences and perceptions, whilst the use of observations and/or documents provided contextual insight into the branding practices of the organisation.

2.4 Data Analysis

The data were analysed through the grounded theory coding methods of open, axial, and selective coding (Strauss & Corbin, 1990). Open coding involved breaking the data into separate concepts and then establishing initial themes; axial coding involved grouping the themes into larger general categories as well as determining the relationships between the various themes. Finally, the use of selective coding allowed for the integration and refinement of the categories into a cohesive conceptual framework. Qualitative data analysis software (NVivo 9) aided in the organisation and coding of the data.

2.5 Ethical Issues

The study adhered to the ethical standards throughout. The subjects of the study provided their consent for the study via informed consent; the confidentiality of the subjects was assured; and finally, participation in the study was voluntary. Written permission was obtained from the organisations prior to any data collection.

3. Results

This report presents the outcomes of a grounded theory analysis for the ten leaders in the South African motor retail sector regarding their view and experience with branding. The findings from the analysis have been organized into each of the coding phases, providing the themes, categories, and the core construct in sequence.

3.1 Open Coding Results

A word frequency search performed in Nvivo 9 produced 3183 individual keywords from a minimum of two letters in length (including stemmed words). These 3183 keywords were exported into an Excel spreadsheet, which were then categorised into 36 distinct branding themes based on branding knowledge, interview insight, and branding literature. Frequency-orderd and alphabetized, the 36 themes that emerged from an open coding process are provided in Table 1 and Table 2 respectively. Among the more apparent themes were external branding; participants stated that the Company; Professional, Fun, & Passionate; as expressed in the following participant quotes: (3) “I am completely committed to the brand and passionate about the Company. I am the brand.” (4) “My brand is in my blood, when I see my Company I feel good about my brand and company, and the symbol that represents that.” Commitment also emerged as an important theme with participants frequently using words like “dedicated”, “passionate”, “focused”, and “committed.” Participant 1 stated, “The people here are doing this because of love and not at all for the money, and they are super committed.” Similarly, participant 10 stated, “I'm passionate and committed.”

Table 1: Open code categories in frequency order

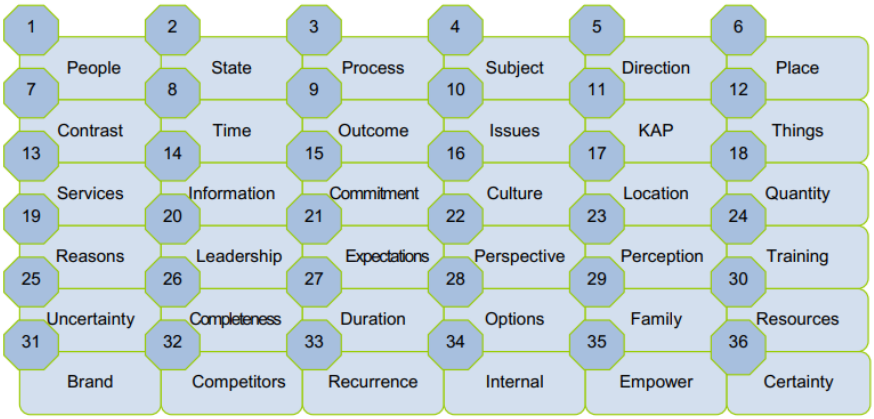


Table 2: Open code categories in alphabetical order

Brand	Empowerment	Options	Recurrence
Certainty	Expectations	Outcome	Resources
Commitment	Family	People	Services
Competitor	Information	Perception	State
Completeness	Internal	Perspective	Subject
Contrast	Issues	Place	Things
Culture	KAP	Process	Time
Direction	Leadership	Quantity	Training
Duration	Locations	Reasons	Uncertainty

Culture was repeatedly identified as an important theme by participants, with many noting a sense of family and belonging at the Company. For example, Participant 10 said, "We consider the Company to be a family and we truly are a family." According to Participant 6, "The sense of belonging we have here is unlike anything I’ve ever experienced anywhere else."

The theme of leadership was another significant theme that surfaced in the interviews with participants making direct references to leadership and management a total of 317 times. One participant stated, "A leader must be willing to serve and that is why they are there. Leaders must also set a good example and treat

everyone with respect." According to another participant: "As leaders we have to constantly remind our employees about how important it is to recognise the brand and being a good motivator to our people."

Empowerment through information and training was also cited as being a prominent theme with participants indicating that there were open lines of communication and on-going training. Participant 3 stated, "There are always open lines of communication in this Company." In Participant 6's words, "We believe in empowering people with training and development; in particular, through self-development courses. The Company spends a lot of money on empowering people."

3.2 Axial Coding Results

The second phase of the coding process required axial coding. Axial coding is where you relate the codes (categories and concepts) to each other through a mixture of inductive and deductive reasoning. There were 15 broad category groupings made from the 36 open codes, based on similarities or commonality in causes or meanings/connotations. Table 3 shows the open-code categories in alphabetical order, as well as how they relate to this research.

Table 3: Open code categories in alphabetical order and their description relative to the context of this study

S.No	THEME CODE	THEME DESCRIPTION
1	Brand	The participants' views and experiences of their brand
2	Certainty	The participants' complete confidence in their opinions
3	Commitment	The participants' sense of devotion, loyalty or dedication to the Company or brand
4	Competitor	Experiences and awareness of competition or market opponents
5	Completeness	Concept of the totality of the group, staff members or employees
6	Contrast	Concepts of comparison and contrast (differences and similarities)
7	Culture	Shared beliefs, customs, practices and social behavior in the Company
8	Direction	Sense of goals, purpose and development of participants and the Company
9	Duration	Concepts of length of service
10	Empowerment	Concepts of need for self-confidence and self-esteem among Employees and their subordinates
11	Expectations	Sense of anticipation and expected standards
12	Family	Sense of belonging to a group with something in common
13	Information	How and what facts are gathered and made known in the Company
14	Internal	Occurring or existing within the Company
15	Issues	Problems, challenges and general concerns
16	KAP	Knowledge, attitude and practice of staff and leaders
17	Leadership	Roles played in guiding, directing and influencing employees and company processes
18	Locations	Geographic sites, positions or settings of company structures and infrastructure
19	Options	Available choices and freedom of choice in the course of action In the Company
20	Outcome	Results or final state of actions, processes and change Management
21	People	Human beings collectively, within and outside the Company
22	Perception	Awareness of participants and their impressions of the Company
23	Perspective	Future projections or assessment of the corporate brand from a Personal point of view
24	Place	Geographic localities (towns, countries, regions) in the lives, history and careers of the participants
25	Process	The day-to-day activities, actions and occurrences in the Company
26	Quantity	Measurable properties of objects or subjects mentioned by the Participants
27	Reasons	Attention to detail and the desire of the participants to give the full picture
28	Recurrence	Established patterns and routines in the Company
29	Resources	Sources the Company draws on for profit, and the importance of Profit to the Company

S.No	THEME CODE	THEME DESCRIPTION
30	Services	What is done for customers or clients
31	State	Conditions of things or people depending on circumstances
32	Subject	Topics or branches of learning that the participants discussed
33	Things	Personal belongings and equipment for company activities
34	Time	Period during which actions, processes or conditions existed or took place
35	Training	The acquisition and maintenance of job skills
36	Uncertainty	Sense of uncertainty, unpredictability and lack of guarantee

The frequencies of theme mentions by each participant are displayed on Table 4. Participant 10 had more mentions than any other participant in the categories of people (409 total mentions), state (366 total mentions), process (334 total mentions), and subject (317 total mentions). Participant 5 had the highest number of mentions for 'brand' (70 total mentions). Additionally, Participant 1 had the highest number of mentions for services (178 total mentions) and process (242 total mentions). The grouping of themes and the creation of 15 themes was done through analyzing these themes after the first round of axial coding.

Table 4: Number of times each theme was mentioned by each participant

THEME	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
Brand	7	12	12	18	70	7	5	2	4	45
Certainty	118	42	32	27	72	96	74	15	18	24
Commitment	66	50	46	46	53	56	20	42	55	106
Competitors	26	15	1	0	40	4	1	1	0	30
Completeness	42	54	20	20	23	31	15	16	31	66
Contrast	178	103	72	117	102	131	50	68	92	199
Culture	54	91	44	39	40	42	15	42	23	101
Direction	225	171	98	98	165	155	79	93	89	229
Duration	102	39	20	29	35	55	25	23	46	65
Empower	0	4	0	0	0	0	0	0	0	0
Expectation	53	35	27	23	43	44	12	25	25	82
Family	57	31	37	29	19	44	23	25	19	54
Information	125	60	39	36	44	85	31	60	31	127
Internal	6	1	1	2	8	6	4	22	11	7
Issues	141	66	48	60	83	119	50	66	55	162
KAP	93	113	31	60	50	101	33	54	68	152
Leadership	39	55	10	22	30	22	10	36	19	84
Location	74	44	41	36	63	72	23	65	45	95
Options	56	42	23	23	17	29	27	35	27	58
Outcome	127	56	39	40	27	66	18	31	42	168
People	241	203	106	148	139	218	64	117	115	409
Perception	62	52	39	33	63	70	25	47	15	71
Perspective	59	48	48	43	44	38	14	39	30	77
Place	161	93	42	59	85	154	62	30	48	204
Process	242	148	119	122	172	161	74	157	80	334
Quantity	92	46	39	59	59	73	20	30	38	95
Reasons	83	48	20	40	50	50	7	19	30	93
Recurrence	20	3	5	3	5	7	7	7	3	23
Resources	30	23	8	16	23	16	3	20	11	51

Services	178	112	62	37	155	59	18	44	63	135
State	232	191	147	211	152	261	82	136	138	366
Subject	160	117	102	127	113	132	49	124	77	317
Things	99	45	40	28	75	92	38	60	35	151
Time	218	86	40	47	68	72	17	54	41	172
Training	65	20	13	19	21	9	9	12	7	68
Uncertainty	50	22	19	13	28	38	10	30	12	67

From 15 categories, a final six "core" category consolidation process was conducted. The "Human Factor" core category consisted of the employees' knowledge, attitudes, practices, perceptions, completeness, and certainty, and during all interviews participants referenced employees 1760 times; notably, Participant 10 contributed 409 of those references. The "Culture" core category was made up of organisational socialisation (family and people), openness, state/condition, and company-specific issues, with 491 references. The "Performance" core category consisted of performance management and time factor themes; there were 81 direct references to processes. The "Leadership" core category included vision, investment, commitment, and environmental knowledge; overall, participants made direct references to leadership 317 times. The "Empowerment" core category encompassed empowerment, information, and training themes; participants made 132 direct references to communication. The "Competitive Forces" core category included participants' concerns regarding competition (121 direct references).

Table 5 presents the connection between the six main categories. Leadership had connections to each of the other five major categories which established that leadership plays a key role in brand development. The Human Factor category was connected to every other core category, further confirming the importance of employees as a central component of successful brand alignment. Culture, performance and empowerment all exhibited strong connections to other categories demonstrating that those influences function as a single unit instead of being independent. The relationship between the categories demonstrating that committed leaders with understanding of their environment develop the organizational family culture, encouraging positive human factors, empowered employees, superior performance, and the ability to overcome competitive forces.

Table 5: The inter relatedness soft-core categories

	HUMAN FACTOR	CULTURE	PERFORMANCE	EMPOWERMENT	LEADERSHIP	COMPETITIVE FORCES
Human factor/employees		X	X	X	X	X
Culture	X		X	X	X	X
Performance	X	X		X	X	X
Empowerment	X	X	X		X	X
Leadership	X	X	X	X		X
Competitive forces	X	X	X	X	X	

3.3 Selective Coding Results

Committed leaders who have an excellent command of the external and internal environment will ultimately become the leaders of the Company and the Brand vision (Naidoo, 2013). Empowering employees results in excellent performance and work output, particularly when dealing with Customers. With truly empowered employees, the Company has the ability to overcome its competitive environment and can ultimately provide excellent customer service to both Current and Prospective Customers. Consequently, the Company will be able to maintain its great and consistent organisational performance. Due to the overall supportive Family Culture within the Organisation and Happy, and Satisfied Employees, as well as a financially healthy Organisation.

4. Discussion

4.1 Integration of First-Order and Second-Order Constructs

In accordance with the first-order/second-order construct typology put forth by Schutz (1962), and Mouton and Marais (1990), the Leadership and Brand Alignment Model (LBAM) was created.

4.2 Leadership

Leadership is defined as the leader(s) vision, commitment, knowledge about the internal and external environments of the organisation, and investment in both the organisation and employees. Leaders with a vast amount of knowledge/experience regarding the external environment will create a positive effect on the organisation and thus, ultimately, the employee-brand identity fit (Naidoo, 2013).

First-order constructs from the research participants: Participant 1 stated, "The people who work here do so out of love for the work, and certainly not for the money; they are extremely committed. I like to lead with direction, and others seem to follow it." Participant 2 said, "A leader should be there to serve; they must provide a guiding example and treat others with respect.

The second order constructs from previous studies were the following: Vallaster & de Chernatony (2006), the vision of leadership provides clarity and consistency to defining and steering a corporate brand/identification; Burmann & Zeplin (2005) argue that leaders need to articulate the brand identification, including its heritage, vision, values, abilities and personality attributes. Valued leaders create energy around the internal branding process (Vallaster & de Chernatony 2006); they are also the 'care factor' in the organisation (King & Grace 2006).

4.3 Culture

Culture includes the aspects of the concepts of socialising (family) within the organisation; being open, state and issues. An employee comes to know and understand the organisational environment through the process of socialising, in that they perceive that the organisation supports their learning of organisational values, beliefs and expectations (Naidoo, 2013).

From the perspective of first-order constructs of those involved in the study, Participant 2 says that there is an inclusive community at this company with humanistic views as a way of relating to one another. Participant 4 affirms that family is where we belong in terms of our relationships with co-workers as well as customers. Participant 10 stated that we consider The Company to be our family and, therefore, we are all connected as a result of that bond.

From second-order constructs associated with literature citations, King and Grace (2006) maintain that the physical manifestations of a service brand are a reflection of the overall company's culture, as well as those who have been trained to deliver it; while Vallaster and de Chernatony (2006) argue that corporate culture is beneficial for building the corporate brand and delivering value-based services to employees; whereas Burmann and Zeplin (2005) express the idea of corporate brand values are instilled within the organisation by means of informal knowledge transfer amongst colleagues/superiors and through formal statements of value to employees within the organisation.

4.4 Human Factor/Employees

The development of employee capability and motivation to acquire and apply meaningfully relevant brand knowledge would be enhanced through a positive internal culture and environment. First-order constructs provided by participants: Participant 3 stated, "We have passion and enthusiasm - I think this is reflected in our employment of character and attitude." Participant 10 commented, "We are constantly told we are the best the company has; therefore, we started to believe we are the best: we believe we are the best!"

Second-order constructs provided by scholars: Vallaster & de Chernatony (2005): "Leaders should trust and empower their employees to perform to their maximum capabilities." King & Grace (2006): "Companies must create an internal environment to foster the capability and motivation of employees so that they may acquire and develop the necessary and meaningful brand knowledge."

4.5 Empowerment

Empowerment refers to providing all employees within the company with more power, training and information about the company’s image and how-to further that image. The first-order constructs that were

identified by some of the participants included: Participant 1 stated, “People in the organisation always pick information up from others and carry it through the organisation;” Participant 2 noted, “We provide a lot of intensive training and that means we have empowered employees;” Participant 6 added, “We have a belief at this company that we empower people through the training and development of them, and particularly through self-development courses. The company spends a large sum on empowering people;"

The second-order constructs from the literature include: Vallaster & de Chernatony (2005), discuss that internal communication is an important factor in creative internal communication and in receiving information on brand-enhancing behaviours are important factors. King & Grace (2006) discuss that training and use of internal marketing are also very important. Burmann & Zeplin (2005) also mention that employees who have a strong fit with the organisation’s brand identity, should be empowered or promoted.

4.6 Internal Brand Building

The basis of successful internal branding is a strong strategic vision, internal family culture, and corporate identity that can be recognised by organisation members. Internal branding that unifies both internal communication and training has a significant impact on employee's brand identity, brand loyalty, and brand commitment.

Literature provided the following second-order constructs: As noted by Vallaster and de Chernatony (2006), successful internal brand development relies on the proper mix between strategic vision and the organisational culture and corporate identity. Furthermore, Punjaisri et al. (2009a) noted that when internal branding incorporates both training and internal communication, it has a positive influence on brand identity, brand commitment and brand loyalty of employees.

4.7 Brand Citizenship Behaviour

Brand identification creates brand commitment, which leads to brand loyalty. Brand commitments to individuals lead to brand citizenship behaviours. Punjaisri et al. (2009b) state that internal branding enables organisations to have an influence on their employees’ identification with the brand, commitment to the brand, and loyalty to the brand. Burmann & Zeplin, (2005) state that developing a strong level of individual commitment leads to brand citizenship behaviours, and that developing a strong level of internalisation has the greatest positive effect on brand citizenship behaviours.

4.8 Enhanced Employee Commitment and Performance, Customers, and Superior Organisational Performance

When a workplace creates an organizational culture, leadership, and team experience that includes the necessary tools for success (training/empowering employees, sharing company and brand message), the employee feels fulfilled, committed, and loyal to the organization and the brand. As a result, the employee will provide exceptional performance, show commitment and loyalty to the brand, and display behaviours that are branded-citizenship. First order Theme Constructs developed by the Participants: Participant 3 commented, "Service delivery and excellence has always been a core value of our company." Participant 10 described, "We have been in business since 1968 - our core values are based on service, integrity, and good value." 2nd Order Theme Constructs developed through the Literature: King & Grace (2006) identified that strong leaders create an organisational culture and behaviour that supports superior organisational performance. According to Vallaster & de Chernatony (2005), an employee's pride and satisfaction with the company's brand leadership is a significant factor for a brand to come to life.

4.9 Enhanced Brand and Company Performance and Greater Competitive Advantage

A brand identifies with employees who exhibit loyalty and commitment; these employees respond positively to the brand from a workplace environment that is family-oriented. By doing so, sales will increase due to the number of stakeholders who want to do business and/or associate with an organisation/brand that presents itself as being significantly "better" than its competitors. Participant responses relating to the first-order constructs: Participant 4 indicated "I worked at a competitor and they had better systems and processes than we do. However, we are still better." Participant 5 said "We are not as large as our competitors but we are better than they are."

Based on previous studies, Punjaisri, Evanschitzky and Wilson (2009) argue that internal branding can create a bond between an employee and a brand through communication of the brand's values; thus, establishing the

company's unique identity from its immediate competitors. According to Burmann & Zeplin (2005), it is imperative to have brand recognition in order to overcome his competitor's brand.

5. Conclusion

In conclusion, this study has shown that the role of leadership in connecting both internal and external branding within an organization's structure is fundamental and crucial (Naidoo, 2013). Using a grounded theory method, our findings illustrate how leadership impacts brand alignment through developing the organization's culture, empowering employees, communicating effectively with employees, and developing congruence between the organization's values and its customer value proposition. The new Leadership and Brand Alignment Model (LBAM) identify leadership as the primary driver that connects employee experiences to the promise of the external brand experience. This study also indicates that when employees are fully engaged and empowered, they have higher levels of commitment to the brand and demonstrate higher levels of citizenship behavior associated with the brand (Naidoo & Ukpere, 2012). In addition, a strong organizational culture has been identified as a critical mechanism for the internalization and sustainability of branding values (Naidoo, 2013). This study, therefore, provides a novel theoretical and practical framework for understanding how leadership can facilitate the connection between internal and external branding in organizations in South Africa.

Acknowledgement

This paper is based on research undertaken as part of the author's doctoral Studies at the University of Johannesburg, South Africa, entitled "The Alignment between External and Internal Branding in a Leader Group", completed in the year 2013. I like to express my sincere gratitude and acknowledgement to my Professors, Prof Willem Schurink, and the late Prof Jos Coetzee, for their full supervision, total support and dedication to my studies.

Ethics Declaration: Ethical approval was obtained prior to data collection and all participants provided informed consent. Confidentiality, anonymity, and data protection were strictly maintained throughout the study.

AI Declaration: No AI tools were used in the creation of this paper.

References

Aaker, D.A. (1996) *Building Strong Brands*. New York: Free Press.

Alloza, A., Conley, S., Prado, F.J. and Espantaleon, R. (2004) 'Creating the BBVA experience: Beyond traditional brand management', *Corporate Reputation Review*, 7(1), pp. 66–82.

Andersen, P.H., Aberg, S. and Bujac, A. (2023) 'Corporate sustainable brand identity work and network embeddedness: Learnings from Better Place (2007–2013)', *Industrial Marketing Management*, 115, pp. 526–538.

Burmann, C. and Zeplin, S. (2005) 'Building brand commitment: A behavioural approach to internal brand building', *Journal of Brand Management*, 12(4), pp. 279–300.

Davis, S. (2002) 'Implementing your BAM2 strategy: 11 steps to making your brand a more valuable asset', *Journal of Consumer Marketing*, 19(6), pp. 103–110.

Haddad, S. (2024) *Investigating the Influence of Self-Brand Congruity on Emotional Brand Attachment and Their Impact on Original and Counterfeited Luxury Brand Patronage*. Doctoral thesis.

Ind, N. (1997) *The Corporate Brand*. London: Macmillan Press.

King, C. and Grace, D. (2006) 'Exploring managers' perspectives of the impact of brand management strategies on employee roles within a service firm', *Journal of Services Marketing*, 20(6), pp. 369–380.

Kinnunen, P. (2025) *Internal branding in sustainable procurement*. Master's thesis.

Mitchell, C. (2002) 'Selling the brand inside out', *Harvard Business Review*, 80(1), pp. 99–105.

Mouton, J. and Marais, H.C. (1990) *Basic Concepts in the Methodology of the Social Sciences*. Pretoria: HSRC.

Naidoo, V. (2013). *The alignment of internal and external branding in a leader group*. University of Johannesburg (South Africa). Doctoral Thesis.

Naidoo, V. & Ukpere, W.I. (2012). 'Leadership as a key element in the effective alignment between external and internal branding in organisations', *African Journal of Business Management,* 6, pp. 9543-9548.

Nwekeala, B.B. (2026) 'Brand identity and consumer choice of bottled water manufacturing firms in Port Harcourt', *BW Academic Journal*. Available at: https://www.bwjournal.org/index.php/bsjournal/article/view/3805

Oakner, L. (2004) 'Don't let your employees be the last to know'. Available at: http://www.interbrand.com

Onwioduokit, E. and Moavodi, M. (2026) 'Leadership styles, referent power, and employee motivation: Evidence from the life insurance industry in Gauteng, South Africa', *International Journal of Social Sciences*, 18(1), pp. 36–53.

Prashar, A. and Maity, M. (2024) 'Building employee commitment through internal branding – a meta-analytic study', *European Journal of Marketing*, 58(5), pp. 1241–1274.

Punjaisri, K., Evanschitzky, H. and Wilson, A. (2009a) 'Internal branding: An enabler of employees' brand supporting behaviours', *Journal of Service Management*, 20(2), pp. 209–226.

Punjaisri, K., Wilson, A. and Evanschitzky, H. (2009b) 'Internal branding to influence employees' brand promise delivery: A case study in Thailand', *Journal of Service Management*, 20(5), pp. 561–579.

Sartain, L. (2005) 'Branding from the inside out at Yahoo! HR's role as a brand builder', *Human Resource Management*, 44(1), pp. 89–93.

Schutz, A. (1962) *Collected Papers I: The Problem of Social Reality*. The Hague: Martinus Nijhoff.

Smith, H. (2004) *South African Knowledge Manager's Social Construction of Knowledge Management and Human Resources: A Grounded Theory Approach*. Unpublished doctoral thesis, University of Johannesburg.

Strauss, A. and Corbin, J. (1990) *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. London: Sage.

Strauss, A. and Corbin, J. (1998) *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* (2nd ed.). Thousand Oaks, CA: Sage.

Thokoa, R.L., Naidoo, V. and Herbst, T. (2022) 'An exploration of internal branding at the National Treasury of South Africa', *South African Journal of Business Management*, 53(1), pp. 2593.

Tshatshu, Q., Ndandani, Z. and Gwabavu, M. (2026) 'The effect of leadership styles on the professional development of project managers in South Africa', *International Journal of Construction Management*, 26(7), pp. 1264–1283.

Turpin, D. (2003) *Brand Management: It's not only about products and services, it's also about people!*. IMD Perspectives for Managers. Available at: http://www.imd.ch

Ulrich, D. and Smallwood, N. (2000) 'Leadership brand', *Innovative Leader*, 9(5), pp. 2–4.

Vallaster, C. and de Chernatony, L. (2005) 'Internalisation of service brands: The role of leadership during the internal brand building process', *Journal of Marketing Management*, 21(1–2), pp. 181–203.

Vallaster, C. and de Chernatony, L. (2006) 'Internal brand building and structuration: The role of leadership', *European Journal of Marketing*, 40(7–8), pp. 761–784.

Vijayalakshmi, S., Joshi, M., Kaur, B., Budhiraja, A. and Gupta, M.Y.C. (2025) 'Employer branding as a marketing strategy: Integrating HRM practices to attract and retain talent', *Advances in Consumer Research*, 2, pp. 5332–5340.

A Phantasmagoria: Does Learning and Development Support Organizational Performance?

Hester Nienaber[1] and Richard G. McNeill Jr.[2]
[1]hesternienaber.com, Flagstaff, AZ, USA
[2]School of Hotel and Restaurant Management, The W.A. Franke College of Business, Northern Arizona University, Flagstaff, AZ, USA

hester@hesternienaber.com
Richard.McNeill@nau.edu

Abstract: Background: Organizational leadership authorizes significant investments in Learning and Development (L&D) to align and develop employee competence with strategy execution to accomplish organizational performance. Nonetheless, strategy execution fails – endangering the well-being of organizations, their employees, customers, and society. Research reports a persistent problem, namely, the absence of suitably competent employees to execute strategy – a phantasmagoria that demands examination. As part of a larger study, this paper reports on organizations' investments in employee competence development by aligning L&D and effective strategy execution to accomplish organizational performance. Our research question was: "How do organizations align L&D with effective strategy execution to manage organizational performance?" Limited empirical information on the topic compelled an exploratory approach. To *gain understanding*, we combined literature on strategy, L&D, and operations into a comprehensive integrated conceptual framework (Figure 1). Figure 1 clearly demonstrates how employee competence aligns with effective strategy execution to accomplish organizational performance. Figure 1 served as the basis for our exploratory online survey, which collected extensive standardized data from a purposively selected sample. Responses met norms for exploratory surveys and trustworthy criteria. We descriptively analyzed the data. The findings suggest a feckless L&D and organizational strategy alignment, which returns performance shortfalls. Responses to an open-ended question revealed that respondents neglected customer value, the core rationale for an organization's existence and essence of strategy. Consequently, no amount of L&D expenditure would align or develop employee competence to create and deliver customer value. Contribution: Our conceptual framework unambiguously aligns L&D and organizational performance – an idiosyncratic contribution. Our framework propels leadership to *rethink* L&D and *practically* craft an effective strategy based on customer value. The cross-sectional design limits generalizations. We recommend further studies to permit generalizations.

Keywords: Aligning L&D and organizational performance, Organizational strategy, Customer value, Integrated employee competence measurement, L&D investments in employee competence, Exploratory survey

1. Introduction

Phantasmagoria … what a bizarre title! Learning and Development (L&D) aims to align and build employee competence, i.e., knowledge, skills, experience, attitudes, needs, and aspirations, with effective strategy execution (CIPD, 2025b; Garavan et al, 2020; Hayden, 2024). Strategy intends to create and deliver value and is the means to accomplish successful organizational performance expressed in financial and non-financial results (Collier and Evans, 2020; Fayol, 1916[2013]; Thompson et al, 2024). Phantasmagoria means dream-like visions, real or imagined, like those seen in a dream (vocabulary.com). Is this really happening? How can L&D be a phantasmagoria when organizations spend large sums on L&D?

The global L&D market was valued at US$361.5 billion in 2023 and is estimated to reach US$805.6 billion in 2035 (alliedmarketresearch.com, 2024). Reports show that L&D investments emphasize interpersonal competence development to improve behavior (Garavan et al, 2021; Gifford and Wietrak, 2022). This L&D focus ensues from (a) poor interpersonal relationships that derail organizational performance and (b) measuring employee competence mainly at the tactical/input and activity/operational-processes measurement levels, typifying efficiency (Kahn, 1992; Nienaber and McNeill, 2022).

Notwithstanding massive L&D spending, research reports a persistent strategy execution failure – imperiling organizations, employees, customers, and society (Bourgeois and Brodwin, 1984; Holm, Kringelum and Anand, 2025). Among many, the recurring reason for the strategy execution failure is the physical or psychological unavailability of suitably competent employees to execute strategy (CIPD, 2018; Kahn, 1992; Mankins and Steele, 2005). This apparent *phantasmagoria* needs clarification.

Vision in a fog is a daunting task. Limited empirical research on the topic demonstrates that organizations do not know how employee competence links to strategy execution that produces organizational performance (CIPD, 2018; Hamilton and Sodeman, 2020; Levenson, 2018). Thus, employees are deployed in positions that foil their competence, resulting in (a) low levels of employee engagement, (b) alienation from work, others, and

their organizations, and (c) ill-being, preventing them from performing at their best, (d) and derails organizational performance (Gallup, 2026; Kahn, 1992; Nienaber and McNeill, 2022; Taylor, 1911[2022]). In contrast, ignited competence incentivizes *innovation* that boosts *employee engagement,* which in turn generates organizational performance (Gallup, 2026; Hogan and Sherman, 2020; Kahn, 1992).

The mismatch between employee competence and strategy execution suggests a flawed L&D needs identification. Participant feedback, such as (a) misaligned L&D and organizational goals and (b) inappropriate training content, corroborates the ineffectiveness of L&D interventions (Brassey, Christensen and van Dam, 2019; Gallup, 2026; Garavan et al, 2020; Glaveski, 2019). Thus, some L&D investments are not beneficial as they fail to align or build employee competence to create and deliver value in pursuit of organizational performance, as evidenced by the strategy execution failure.

Behavioral development interventions, stemming from dominating efficiency measurement, are inadequate to improve strategy execution to accomplish organizational performance. Effectiveness, manifest in strategic-level measurement that gauges outputs and outcomes, is often overlooked. Effectiveness matters most in strategy execution to accomplish organizational performance (CIPD, 2025a; Hamilton and Sodeman, 2020; Nienaber and McNeill, 2022). Strategic level measurement primarily reflects competence in the business and leadership domains (cf. Hogan and Warrenfeltz, 2003; Levenson, 2018; Nienaber and McNeill, 2022).

A lack of empirical evidence demonstrating how L&D propels effective strategy execution to accomplish organizational performance (cf. Garavan et al, 2021) raises the question: "How do organizations align L&D and effective strategy execution to manage organizational performance?" To gain understanding, we explored organizations' investments in employee competence development by aligning L&D with effective strategy execution to accomplish organizational performance. This question forms part of a larger, ongoing study focusing on an integrated competence measurement system ensuring successful strategy execution to attain organizational performance.

We empirically studied this question using synthesized literature on human competence measurement, strategy, and operations to illuminate L&D as a means to effective strategy execution to accomplish organizational performance (Collier and Evans, 2020; Garavan et al, 2021; Thompson et al, 2024). We present the synthesized literature in a comprehensive, integrative conceptual framework (Figure 1) that guided our study. Figure 1 visually demonstrates the L&D, strategy, operations, and organizational performance alignment. It shows how employee competence creates value through activities that convert inputs through processes into outputs in support of culminating outcomes, representing organizational performance. Figure 1 includes both efficiency and effectiveness measures that reinforce creating and delivering value through competitive advantage – the foundation of a sound strategy that facilitates accomplishing organizational performance (Porter, 1985; Thompson et al, 2024).

Research identified L&D and organizational performance alignment as a crucial area needing clarification (Brassey, Christensen and van Dam, 2019; Garavan et al, 2020:70; Garavan et al, 2021:94). Our research findings unambiguously demonstrate the L&D-competitive advantage-strategy-organizational performance alignment, which has not been done before. Our Figure 1 conceptual framework enables: (a) organizational leadership to make evidence-based decisions to overcome the strategy execution failure by developing employee competence through L&D interventions, reassigning employees, or hiring the requisite competence and (b) HR professionals to fulfill their role as strategic partner to ensure suitably competent employees are available to execute strategy to accomplish organizational performance (cf. Garavan et al, 2021; Nienaber and McNeill, 2022; Taylor, 1911[2022]).

2. Conceptual Framework: Aligning L&D and Strategy to Accomplish Organizational Performance

The purpose of an organization is to: (a) offer innovative customer-sought value, whether economic (e.g., cost), functional (e.g., features and benefits), psychological (e.g., availability, memorable experience), or a combination which is derived from consuming the value-offer, (b) provide employment opportunities to societal members, enhancing their self-esteem and dignity, and (c) create wealth (Drucker, 1954; Nienaber and McNeill, 2022; O'Boyle, 2023; Thompson et al, 2024). Leadership is accountable for all of these (a-c). *Organizational culture* enables innovation that unleashes employee engagement, which generates organizational performance and yields customer satisfaction (Gallup, 2026; Hogan and Sherman, 2020; Kahn, 1992; O'Boyle, 2023). Strategy sets the organizational direction, safeguards value creation and delivery, and simultaneously seeks to attain the organizational goals that constitute performance.

A sound strategy is founded on *competitive advantage,* namely (a) delivering differentially better innovative customer-sought value than competitors (b) in chosen markets (c) by suitably competent employees who are deployed in positions that utilize their competence autonomously in creating and delivering value (d) through the mechanism '*structural dimensions of organization for implementing strategy*' that (e) arranges division of labor and integration of effort, and (f) synchronizes key actions (strategy execution) with strategic intent (strategy formulation) (Barney, 1991; Chandler, 1962; Puranam, 2018; Porter, 1985; Skivington and Daft, 1991; Thompson et al, 2024).

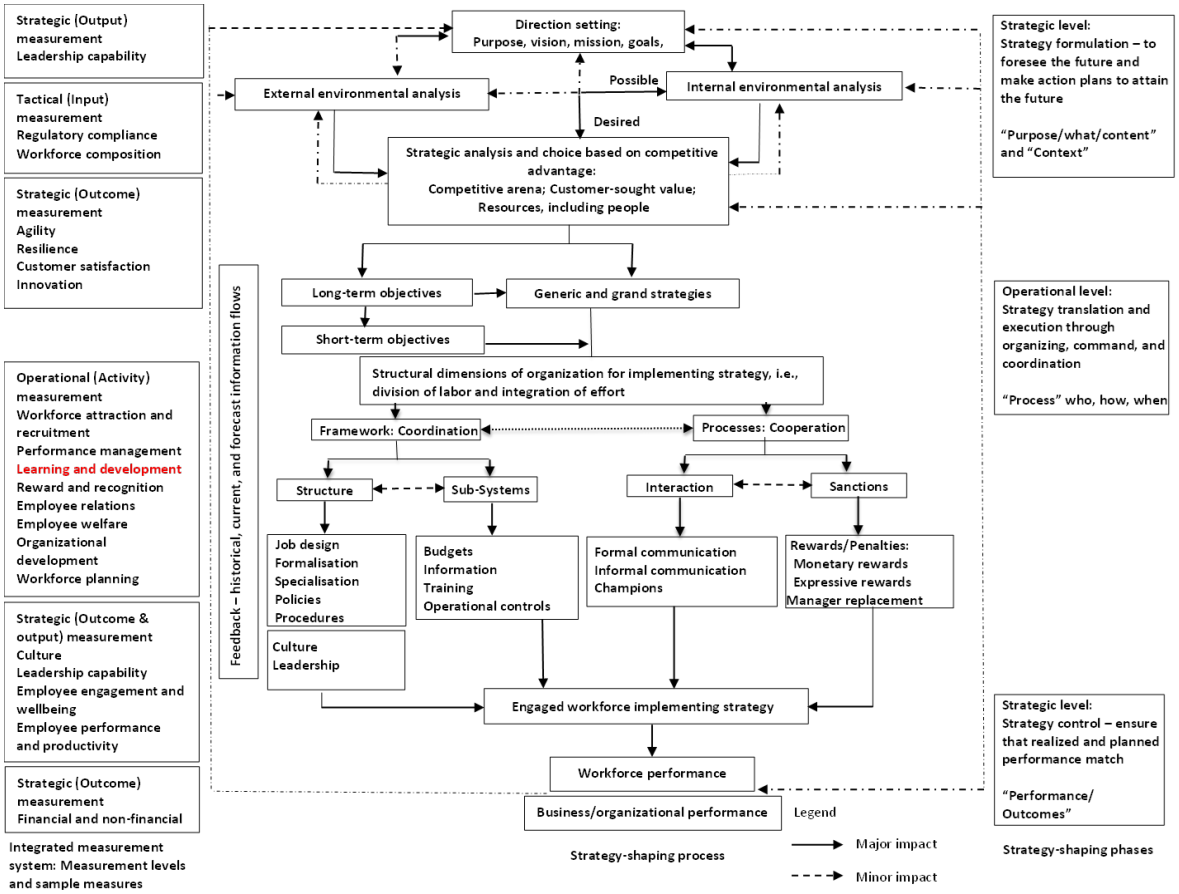
Efficacious organizations use an integrated measurement system for analyzing organizational performance in support of evidence-based decisions to mobilize employee competence in performing value-creating activities (Boudreau and Cascio, 2017; CIPD, 2025a; Hamilton and Sodeman, 2020; Levenson, 2018). Figure 1 does not explicitly label competence. The different measures comprising the integrated measurement system covers competence across the intra-personal, interpersonal, business/technical, and leadership domains, as explained by Hogan and Warrenfeltz (2003) and corroborated by George (2021). Multiple agents in various organizational units typically administer the different competence measures. For example, customer satisfaction is usually measured by the marketing department and L&D by HR or line functions. The dispersed measurement may give rise to a siloed, instead of an integrated, approach to competence measurement, diluting its effectiveness.

L&D, an activity measure at the organizational operational level, is a critical measure aligning employee competence with strategy formulation and execution accomplishing organizational performance. L&D is the systemic and systematic process that (a) analyzes past, current, and future performance needs, (b) followed by design, develop, and implement interventions based on root causes of performance needs, (c) to enhance employee competence – knowledge, capabilities, skills, attitudes, needs, and aspirations necessary (d) to sustain successful organizational performance, and (e) evaluate the success of such interventions in (f) alignment to the organizational strategy and goals, i.e., performance (Brassey, Christensen and van Dam, 2019; CIPD, 2025b; Garavan et al, 2021; Hayden, 2024).

Figure 1 depicts a comprehensive, synthesized conceptual framework that integrates strategy, operations, and L&D, aligned with organizational performance. It shows that strategy is conceived at the organizational strategic level while it materializes at the organizational operational level. Hence, strategy formulation and execution should not be separated, as is often the case (Fayol, 1916[2013]; McNeill and Nienaber, 2025; Stadler et al, 2021; Taylor, 1911[2022]). Figure 1 shows the mechanism '*structural dimensions of organization'* is pivotal in strategy implementation by translating organizational goals into action. Specifically, it arranges (a) division of labor, i.e., task division and task allocation, and (b) integration of effort, i.e., provision of information and rewards (Puranam, 2018) and is critical to L&D. Figure 1 shows that the integrated measurement system accounts for tactical (input), operational (activity-processes), and strategic (outputs and outcomes) competence measurement, all of which are central to the organizational strategy to accomplish performance (Boudreau and Cascio, 2017; CIPD, 2025a; Hamilton and Sodeman, 2020; Levenson, 2018). Each measurement level contains several competence measures for determining value and used according to the judgment of organizations (CIPD, 2025a).

Figure 1 shows an organization as a total integrated open system specifying its dynamic, interacting elements: Inputs, feeding into conversion activities, leading to outputs, in support of culminating outcomes, and feedback. These components account in detail for critical organizational activities pertinent (general) management as described by Fayol's (1916[2013]) Theory of Administration, namely:

- Planning – to foresee the future and draft action plans to realize the future through strategy formulation, execution, and control,
- organizing – to strengthen organizational resources, employee competence and otherwise, to realize the organization's future through strategy translation and execution which is embodied in *structural dimensions of organization for implementing strategy* the mechanism that holds the organization together through division of labor and integration of effort,



Source: Adapted from McNeill and Nienaber (2025)

Figure 1: Integrative conceptual framework aligning strategy, operations, L&D, and organizational performance

- coordination – to harmonize all activities and efforts throughout the organization to ensure its smooth functioning to accomplish organizational performance and is exemplified in the framework structural dimension of organization for executing strategy which galvanizes cooperation,
- command (commensurate to cooperation/relationships) – to guide employees and their interactions or relationships toward realizing the organization's future and is exemplified in the processes structural dimension of organization for executing strategy,
- control – ensure everything occurs as planned.

The total process is underpinned by appropriately transparent and inclusive decision-making and communication to secure organizational performance.

To be successful, organizational leadership needs a thorough knowledge of the business, what its customers value (economic, functional, psychological or combination), employee competence to create and deliver customer-sought value, and constraining environmental variables from the macro-, market-, and micro-environments, e.g., regulatory, market, economic, technological, and sociological factors, that impact desired value delivery, necessitating collaboration of various stakeholders throughout the organization (CIPD, 2025a; Stadler et al, 2021; Thompson et al, 2024).

The aforementioned description suggests competence is intertwined and shown in Figure 1. For example, leadership capability identifies leadership's capacity to (a) set the organizational direction, namely, establish the purpose of the organization based on customer-sought value, develop a vision, mission, goals, and guiding values to deliver customer value, (b) recruit and retain competent employees to create and deliver customer value, (c) influence and align employees towards the common organizational goal, (d) motivate employees to act and take charge of their performance by satisfying their inborn needs to express competence, realize autonomy, and experience relatedness, in alignment with the organizational strategy, and (e) persevere. This description refers to competence in the intra-personal, interpersonal, business/technical, and leadership domains (George, 2021; Hogan and Warrenfeltz, 2003).

3. Employee Competence Measurement

Employee competence required to perform the organizational activities to accomplish organizational performance is reflected in an integrated measurement system which aligns L&D and organizational strategy. Figure 1 illustrates that the measurement levels (tactical, activity-operational, and strategic) are neither consecutive nor distributed according to the corresponding organizational level which complicates employee competence measurement. Figure 1 serves as a guide for leadership, management, L&D specialists, and employees to identify competence needs and introduce relevant development interventions enhancing effective strategy execution to accomplish organizational performance.

Employee competence, pertinent to this paper, relates to crafting a competitive advantage, i.e., delivering differentially better innovative customer-sought value than competitors in chosen markets by suitably competent employees who are deployed in positions that utilize their competence autonomously in creating and delivering value through aligning key actions (strategy execution) with strategic intent (strategy formulation). Competitive advantage is in the business/technical competence domain and signaled in measures of (a) customer satisfaction and (b) resources, specifically employee competence to execute strategy (i.e., create and deliver customer-sought value by performing their jobs) that facilitate accomplishing organizational performance. As discussed, these measures, in turn, are impacted by competence in the leadership, interpersonal, and intra-personal domains. These include leadership capability, culture, innovation, agility, resilience, employee satisfaction, employee engagement, employee performance and productivity, job satisfaction, employee relations, and staff retention, representing the strategic, activity-operational, and input-tactical measurement levels. Thus, confirming the interrelatedness of the competence domains as treated by Hogan and Warrenfeltz (2003).

4. Methodology

Limited empirical evidence on the topic compelled an exploratory approach (Forza, 2016; Garavan et al, 2021; Jansen, 2010; Levenson, 2018). The intention was to uncover an early understanding to solidly position future research instead of prematurely providing conclusive analyses and generalizations (Forza, 2016; Jansen, 2010).

4.1 Exploratory (Qualitative) Survey

Answering the research question required extensive amounts of standardized data collected through a survey. Survey research is a systematic method for collecting large amounts of standardized data, at a low cost, in a short period, from a diverse sample of respondents, with an instrument, such as a questionnaire, consisting of closed-ended and/or open-ended questions by conducting either interviews or administering a questionnaire (Forza, 2016; Jansen, 2010; O'Leary, 2021). A questionnaire provides control over the data collection process as all respondents are asked the same questions and offered the same response formats. Surveys are classified as exploratory (qualitative), descriptive, or explanatory (Forza, 2016; Jansen, 2010).

Limitations of survey research include low response rates due to survey fatigue, the explosion of junk emails, perceptions of bias, and the lack of probing opportunities (Forza, 2016; O'Leary, 2021). Strengths of surveys offset the limitations and include (a) reaching many potential respondents, with a range of views, and over a large geographical area, (b) allowing for comparisons, (c) generating standardized, quantifiable numeric data, (d) generating textual data through open-ended questions, and (e) confidential and anonymous responses (Forza, 2016; O'Leary, 2021).

4.2 Data Collection Instrument

We developed our instrument (questionnaire) after a rigorous literature review (Forza, 2016; O'Leary, 2021). We enhanced trustworthiness by attending to construct identification and linking questions to the study objectives. We adhered to basic design rules, namely, (a) selecting the appropriate data collection method, (b) attention to flow, layout, and wording of questions, and (c) the face-to-face pre-test of the questionnaire with experts (human resource professionals) prior to the main study (Forza, 2016; O'Leary, 2021). The feedback from these experts included collecting data using an online self-report questionnaire. We adjusted the questionnaire based on the pre-test feedback.

The questionnaire consisted of two sections collecting (a) demographics and (b) respondents' perceptions about using employee competence measurement, including L&D, to execute strategy to accomplish organizational performance. The questionnaire comprised 16 questions; 14 were closed-ended and two were open-ended (cf. Jansen, 2010). Examples of questions include: "I am currently employed by a firm active in the following sector

…" as part of demographics; "My organization uses the undermentioned metrics (containing a brief description of the metrics) to manage organizational performance"; "In your view, explain how …" as part of statements relating to perceptions of using employee competence measurement in strategy execution to accomplish organizational performance. The survey was conducted according to ethical research principles. The relevant institutions granted ethical clearance. Voluntary participation was based on informed consent, anonymity, and confidentiality, and participants could withdraw at any time without penalty. No compensation was offered for participation.

4.3 Sample

Sampling in exploratory/qualitative studies poses a challenge as rules and assumptions of explanatory research do not apply (Staller, 2021). The absence of clear and coherent guidance on sample size in qualitative research compounds this challenge (Forza, 2016; Jansen, 2010; Staller, 2021). Misunderstandings persist even when scholars have empirically determined guidelines for specific research methodologies, due to variation (Staller, 2021).

Scholars agree that exploratory studies, including exploratory surveys, rely on a *few responses* to aid interpretive understanding, which is more meaningful than generalizations (Forza, 2016; Jansen, 2010; Staller, 2021). Some scholars warn that large samples can defeat the purpose of understanding (Staller, 2021). Contrary to quantitative studies, the few responses cannot be accurately calculated in advance (Staller, 2021). Furthermore, the focus is not on the number *per se* but the kind of observation unit that best meets the research purpose or answers the research question (Staller, 2021). A suggested numerical guideline ranged from 1 to 50 (cf. Staller, 2021).

To benefit from exploratory research, scholars recommend that the few responses be diverse and cover all relevant varieties of the reality under investigation (Forza, 2016; Jansen, 2010; Staller, 2021). Some scholars suggest that a sample is adequate or saturated when conclusions converge after analysis (Jansen, 2010; Staller, 2021). However, given various interpretations, saturation is not a panacea for an adequate sample size (Staller, 2021). Guidelines to consider in exploratory surveys include (a) to be ethical, use the smallest sample necessary, which is sufficient to satisfy the study objectives, (b) to yield valuable scientific and practical results, and (c) not violate the assumptions of statistical analyses (Forza, 2016; Hannah, 2024; Staller, 2021).

4.4 Data Collection Site

Exploratory surveys use purposive sampling (Forza, 2016; Jansen, 2010; Staller, 2021). We selected the South African Board for People Practices (SABPP) as our data collection site because of its wide-ranging membership, including varied economic activities, organization sizes, and (potential) use of advanced practices, such as employee competence measurement to execute strategy to accomplish organizational performance. Thus, SABPP would be the best source of information to answer the research question (Forza, 2016; Jansen, 2010; O'Leary, 2021).

We provided a cross-sectional survey link to the SABPP in June 2018, which they shared with their members, inviting their voluntary, anonymous, and confidential participation based on informed consent. The survey closed in September 2018. Anonymized feedback was provided to the SABPP and interested respondents in January 2021.

5. Findings and Discussion

As part of a larger study, this paper reports on organizations' investments in employee competence development by aligning L&D and effective strategy execution to accomplish organizational performance. Sixty-one respondents participated in our exploratory survey. Fifty-one respondents reported using L&D in strategy execution to manage organizational performance. Only 27 (of the 51) respondents completed the demographic variable section, making it useful. These (27) responses met the numerical suggestion for exploratory/ qualitative surveys (1-50) and trustworthy criteria discussed by scholars (Forza, 2016; Staller, 2021).

The respondents were diverse in terms of:

- industry (finance and business services; construction; transportation, storage, and communication; electricity, gas, and water; mining and quarrying; wholesale trade, commercial agents, and allied services),
- organizational employee size (large >201, medium 51-200, and small 21- 50 (cf. South Africa, 2003)),
- perception of organizational performance (ranging from excellent to average),

- profile of respondent (CEO to frontline staff; holding a post-graduate degree to certificate; and experience – mode was 10 years),
- strategy employed (various lifecycle, e.g., growth, maintenance, divest, and competitive, e.g., low cost, differentiation, focus),
- satisfaction with strategy employed (ranging from very successful to very unsuccessful),
- reasons for satisfaction with strategy employed (ranging from appropriate to inappropriate to achieve organizational goals; and organizational goals are inappropriate),
- competence measures used and frequency of measurement (ranged from annually to monthly).

The diverse responses comply with qualitative research guidance (Forza, 2016; Jansen, 2010; Staller, 2021).

Most respondents (22/27) indicated ineffective L&D investments in employee competence development to execute strategy to manage organizational performance, as their organizational performance could be improved. This response is consistent with the literature (Garavan et al, 2020; Garavan et al, 2021; Holm, Kringelum and Anand, 2025). An open-ended question aimed at advancing understanding required respondents to specify how the competence measures they used, including L&D, in managing organizational performance through strategy execution, supported competitive advantage (the foundation of a sound strategy facilitating its implementation to accomplish organizational performance). Respondents struggled to answer this question, as inferred from their responses or lack thereof. Eight of the 27 respondents did not answer this question. Eleven respondents provided ambiguous answers such as “win-win” (#10), “strategic input” (#34), “business alignment” (#37), and “give a clear indication of actual vs. planned” (#39).

Eight responses were conceivably partially compatible with the literature on competitive advantage (Barney, 1991; Chandler, 1962; Porter, 1985; Thompson et al, 2024). Two of the eight respondents (#5, 25) from regulated industries stated that competitive advantage is not applicable because they are not subject to competition, which is reasonable. The remaining six respondents (two General Managers, two Divisional Heads, two Specialists) reported performance that could be improved:

- excellent – achieving their goals 80-100% of the time (#21),
- good – achieving their goals 60-79% of the time (#48, #55), and
- average – achieving their goals 40-59% of the time (#23, #44, #26).

Despite reporting excellent performance, Respondent #21 indicated the strategies (growth, differentiation, focus) were inappropriate to accomplish organizational goals – a contradiction. Respondents’ (verbatim) answers to the open-ended question vaguely referred to some dimension of competitive advantage as discussed. Respondents #21, #48, and #55 vaguely referred to talent but not specifically to their competence to execute strategy. Respondent #21 replied: “Map *Key talent* in market in advance, shorten replacement period, fast track performance.” Respondent #48 replied: “Ensure top talent retention.” Respondent #55 replied: “Helps us stay above the market in terms of *retaining people*, using the best available technology, work practices, etc.” Respondent #23 vaguely referred to innovation in its reply: “Always ensuring the company encourages innovation and efficiency in all we do. don't [sic] do the same task the same way and expect different results.” Respondent #44 vaguely referred to customers but not customer-sought value in its reply: “The monthly *customer feedback* assists with benchmarking how we fair with our competitors.” Respondent #26 vaguely referred to innovation and talent in its reply: “creating the environment for innovation is always the challenge. In a fast phase environment and constant pressure innovations sometimes go out the window. It is about identifying the right *talent* and having inspirational leaders that embrace diversity and out of the box thinking.”

These responses suggest respondents neglected innovative customer-sought value – the reason for an organization's existence and a dimension of competitive advantage as discussed (Drucker, 1954; O’Boyle, 2023; Thompson et al, 2024). Neglecting customer-sought value is consistent with Taylor (1911[2022]) and O’Boyle (2023), who maintain that organizations overlook customer value. If organizations do not know what their customers value, how can the requisite employee competence be available to offer customer-sought value, i.e., job performance constituting strategy execution, accomplishing organizational performance? As expected, L&D investments will be ineffective and a waste of resources.

The open-ended responses to competitive advantage did not link competence measures used and crafting a competitive advantage unambiguously as explained in the literature, namely, (a) outperforming rivals in chosen markets by (b) offering differentially better customer-sought value by (c) suitably competent employees through (d) aligning key actions (strategy execution) with strategic intent (strategy formulation) (Barney, 1991; Porter, 1985; Skivington and Daft, 1991; Thompson et al, 2024). Competitive advantage pertains to business-specific

(unique) competence that sets the organization apart from rivals (as shown in Figure 1) and is supported by leadership and interpersonal competence and underpinned by intra-personal competence (Hogan and Warrenfeltz, 2003). Hence, there seems to be a disconnect between the competence measures used by respondents and the attainment of a competitive advantage that facilitates effective strategy execution to accomplish organizational performance – a phantasmagoria.

6. Open-ended Responses vs. Closed-ended Responses Measuring Competence to Craft a Competitive Advantage

To gain further insight, we cross-checked the open-ended responses of the six respondents (#21, #48, #55, #23, #44, and #26) with their answers to closed-ended questions measuring competence required to craft a competitive advantage, illustrated in Figure 1, and discussed. Table 1 summarizes these responses.

Table 1: Reported measures used to assess competence to craft a competitive advantage

Reported competence measures used to craft a competitive advantage anchoring strategy to facilitate accomplishing organizational performance	Respondent #					
	21	48	55	23	44	26
Outcome measures:						
Customer satisfaction	•	•	•	•	•	
Culture	•		•	•	•	
Employee satisfaction	•	•		•	•	
Output measures:						
Leadership capability and succession	•	•	•	•		•
Employee engagement	•			•	•	
Employee performance and productivity	•	•	•	•		•
Activity measures:						
Job satisfaction	•			•	•	
Absenteeism	•	•	•	•		
Employee relations	•	•	•	•	•	•
Performance management	•	•	•	•	•	•
Workforce planning	•	•	•	•		•
Staff retention	•		•	•		•
Staff turnover	•	•	•	•	•	•
Input measures:						
Compensation	•		•	•	•	

Source: Survey responses

Table 1 shows that respondents reportedly used a range of measures at the strategic (outcome, output), activity (processes-operational), and input (tactical) levels of measurement, pertinent to crafting a competitive advantage. Nonetheless, respondents could not make the connection between the competence measures used and competitive advantage, as discussed in the literature and presented in the previous section. Consistent with the discussed literature, these measures were: (a) ineffective in developing and aligning employee competence with competitive advantage, the hallmark of a sound strategy and facilitating its execution, to accomplish organizational performance and (b) seemingly used in a siloed, instead of an integrated fashion, resulting in the reported performance shortfalls (Barney, 1991; Porter, 1985; Levenson, 2018; Nienaber and McNeill, 2022). This disjunction is reflected in their responses to the open-ended question addressed in the previous section.

7. Afterthoughts, Conclusions, Contribution, Limitations, and Suggestions for Further Studies

Despite significant L&D spending to enhance employee competence to accomplish organizational performance, strategy execution fails – realized performance falls short of planning. The recurring reason for the performance shortfall is the unavailability of suitably competent employees to execute strategy. This phantasmagoria raised

the question: "How do organizations align L&D with effective strategy execution to manage organizational performance?"

Given the limited literature on this topic, we investigated this problem through an exploratory/qualitative online survey. The findings of the study suggest an inept L&D and organizational strategy alignment, which returns organizational performance shortfalls. The responses to an open-ended question revealed that respondents neglected customer-sought value, the core rationale for an organization's existence, and the essence of strategy. Consequently, no amount of L&D spending would align or develop employee competence to create and deliver customer-sought value. The study concluded that respondents' L&D in its current format is, indeed, a phantasmagoria – it was ineffective in aligning and building employee competence with effective strategy execution, accomplishing organizational performance. Given the respondents' responses to the survey, this ineffectiveness is interpreted as L&D was not approached in an integrated, systemic, and systematic way to identify performance needs to align and build employee competence with effective strategy to accomplish organizational performance. Thus, no amount of L&D spending would have improved the participants' organizational performance.

Our study contributes new knowledge by demonstrating, in detail (Figure 1), the L&D and organizational performance alignment, a link that has not been demonstrated previously. HR, under the auspices of leadership, can fulfil its role as strategic business partner using L&D to fortify organizational performance per the Figure 1 conceptual framework by practically assisting leadership (a) to build and align required employee competence to execute strategy (b) by using an integrated measurement system comprising a few relevant measures at the different measurement levels, (c) to attain a competitive advantage (d) based on customer-sought value, (e) in the markets served, (f) differentially better than their competitors (g) to accomplish planned organizational performance. In essence, ensuring the alignment of key actions and strategic intent, through the mechanism 'structural dimensions of organization.' In doing so, leadership unifies strategy formulation and execution, thereby fortifying organizational performance. This requires a systemic and systematic integration of a few comprehensive measures (potentially already in use within the organization) across different measurement levels, and collaboratively performed by various organizational stakeholders, illustrated in Figure 1.

The cross-sectional nature of the study and the single geographical location limit generalization. Hence, we invite replication studies. We also recommend further descriptive and explanatory studies, including longitudinal and multi-method studies, across various geographical contexts, to permit broader generalizations.

Ethics and AI Declaration: Ethical clearance was obtained for the study (2017_CRERC_001(FA)). We did not use AI tools in writing the paper.

References

Allied Market Research. (2024) Corporate training Market Share & Share, Growth, Trends 2035. Accessed 4-1-25.

Barney, J. (1991) "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17, No. 1, pp 99-120.

Boudreau, J. and Cascio, W. (2017) "Human capital analytics: Why are we not there?", *Journal of Organizational Effectiveness: People and Performance,* Vol. 4, No. 2, pp 119–126.

Bourgeois, I.J. and Brodwin, D. (1984) "Strategic implementation: Five approaches to an elusive phenomenon", *Strategic Management Journal*, Vol. 5, pp 241-264.

Brassey, J. Christensen, L. and van Dam, N. (2019, February 13) **"**The essential components of a successful L&D strategy", [online] www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/the-essential-components-of-a-successful-l-and-d-strategy

Chandler, A.D. (1962) *Strategy & Structure: Chapters in the History of the Industrial Enterprise,* Martino Publishing.

CIPD. (2018) *Over-skilled and Underused: Investigating the Untapped Potential of UK Skills,* Chartered Institute of Personnel and Development, London.

CIPD. (2025a) *Workforce Reporting,* Chartered Institute of Personnel and Development, London.

CIPD. (2025b) *Learning and Development: How to Develop and Deliver Effective Learning*, Chartered Institute of Personnel and Development, London.

Collier, D.A. and Evans, J.R. (2020) *Operations and Supply Chain Management (*2nd ed.), Cengage, Boston, Ma.

Drucker, P. F. (1954) *The Practice of Management*, Harper & Row, USA.

Fayol, H. (1916[2013]) *General and Industrial Management* (C. Storrs, Trans.), Martino Publishing.

Forza, C. (2016) Surveys, In Karlsson, C. (Ed.) *Research Methods for Operations Management* (2nd ed., pp. 79–164), Routledge, New York.

Gallup. (2026) The Causes of Employee Detachment and How to Address them*,* [online]*,* www.gallup.com/workplace

Garavan, T.N. et al. (2020) "L&D professionals in organisations: Much ambition, unfilled promise", *European Journal of Training and Development*, Vol. 44, No. 1, pp 1-86, https://doi.org/10.1108/EJTD-09-2019-0166

Garavan, T. et al. (2021) "Training and organisational performance: A meta-analysis of temporal, institutional and organisational context moderators", *Human Resource Management Journal*, Vol. 31, pp 93-119, https://doi.org./10.1111/1748-8583.12284

George, S. (2021) *Competence and Competency Frameworks,* Chartered Institute of Personnel and Development, London.

Gifford, J. and Wietrak, E. (2022) *People Performance: An Evidence Review: Practice Summary and Recommendations,* Chartered Institute of Personnel and Development, London.

Glaveski, S. (October 2, 2019) [online] www.hbr.org/2019/where-companies-go-wrong-with-learning-and-development

Hannah, D. (2024) "A call for greater humility in management research", *Journal of Management Inquiry*, 1-3. https://doi.org/10.1177/10564926241288799

Hamilton, R.H. and Sodeman, W.A. (2020) "The questions we ask: Opportunities and challenges for using big data analytics to strategically manage human capital resources", *Business Horizons,* Vol. 63, No. 1, pp 85–95.

Hayden, D. (2024) *Learning and Development Strategy and Policy: Explore How to Create and Implement a Learning and Development Strategy and Policy to Support Organisational Performance,* Chartered Institute of Personnel and Development, London.

Hogan, R. and Sherman, R.A. (2020) "Personality theory and the nature of human nature", *Personality and Individual Differences,* Vol. 152, Article 109561.

Hogan, R. and Warrenfeltz, R. (2003) "Educating the modern manager", *Academy of Management Learning and Education*, Vol. 2, No. 1, pp 74-84.

Holm, C.G., Kringelum, L. and Anand, A. (2025) "Creating effective strategy implementation: A systematic review of managerial and organizational levers", *Review of Management Science*, https://doi.org/10.1007/s11846-025-00880-3

Jansen, H. (2010) "The logic of qualitative survey research and its position in the Field of Social Research Methods*", FQS,* Vol. 11, No. 2, [online], http://www.qualitative-research.net/

Kahn, W.A. (1992) "To be fully there: Psychological presence at work", *Human Relations,* Vol. 45, No. 4, pp 321–349.

Levenson, A. (2018) "Using workforce analytics to improve strategy execution", *Human Resource Management,* Vol. 57, No. 3, pp 685–700.

Mankins, M.C. and Steele, R. (2005) "Turning great strategy into great performance", *Harvard Business Review,* July-August, pp 65–72.

McNeill, R.G. and Nienaber, H. (2025) "Ignorant certainty: Leadership in a dogmatic haystack", In: Buisine, S. (Ed.), *Proceedings of the 21st European Conference on Management Leadership and Governance (ECMLG)* (pp.189-198). Academic Conferences International, Reading, UK.

Nienaber, H. and McNeill, R.G. (2022) "Leadership diagnostic: Unlocking human competence for effective strategy execution", In Matos, F. & Rosa, A. (Eds.). *Proceedings of the 18th European Conference on Management Leadership and Governance (ECMLG)*. (pp. 347-356). Academic Conferences International, Ltd., Reading, UK.

O'Boyle, E. (2023, February 9) "The customer satisfaction crisis: Solve it with 3 strategies", [online], https://gallup.com/workplace/469775/customer-satisfaction-crisis-solve-strategies.aspx

O'Leary, Z. (2021) *The Essential Guide to Doing Your Research Projec*t (4th ed.), Sage, London.

Porter, M. (1985) *Competitive Advantage: Creating and Sustaining Superior Performance,* The Free Press, USA.

Puranam, P. (2018). *The Microstructure of Organizations* (Oxford, 2018; online edn, Oxford Academic, 19 July 2018), https://doi.org/10.1093/oso/9780199672363.001.0001

Skivington, J.E. and Daft, R.L. (1991) "A study of organizational 'framework' and 'process' modalities for the implementation of business-level strategic decision", *Journal of Management Studies*, Vol. 28, No. 1, pp 45–68.

South Africa. (2003) *National Small Business Amendment Act, Act No. 26 of 2003*. Government Printer.

Stadler, C., Hautz, J., Matzler, K. and Von Der Eichen, S.F. (2021) *Open Strategy: Mastering Disruption from Outside the C-Suite*, MIT Press, Cambridge, MA.

Staller, K.M. (2021) "Big enough? Sampling in qualitative inquiry", *Qualitative Social Work*, Vol. 20, No. 4, pp 897–904, [online], https://doi.org/10.1177/14733250211024516

Taylor, F.W. (1911[2022]). *The Principles of Scientific Management*. Indo-European Publishing.

Thompson, A.A., Peteraf, M.A., Gamble, J.E. and Strickland, A.J., III. (2024) *Crafting and Executing Strategy: The Quest for Competitive Advantage,* McGraw-Hill, USA.

Vocabulary. (n.d.) Vocabulary.com Dictionary, [online], https://www.vocabulary.com/dictionary/phantasmagoria

The Hierarchy of Strategic Intent: A Standardized Architecture for Purpose-driven Organizational Design

Kelly O'Brien and Marylou Shockley
College of Business, Responsible Business Innovation Lab (RBIL), California State University Monterey Bay, Seaside, California, USA

keobrien@csumb.edu
mshockley@csumb.edu

Abstract: The proliferation of purpose-driven business models and informal strategic terminology has blurred distinctions among purpose, mission, vision, and values, complicating organizational design and accountability. We propose the Hierarchy of Strategic Intent (HSI), a seven-component teleological framework rooted in the Quintuple Bottom Line of Responsible Business (people, planet, profit, ethics, equity) that standardizes and integrates purpose, mission, vision, and values with governance, legal form, and management structure. HSI addresses a gap in the responsible-business literature: the absence of a coherent architecture linking aspirational language to the administrative systems that either support or undermine it. The framework extends strategic-intent theory by specifying how purpose cascades into structure, and it offers entrepreneurs, established firms, and investors a diagnostic tool for identifying where an organization's stated commitments are, or are not, structurally embedded. The Integrated Performance and Impact Cycle operationalizes HSI into measurable, repeatable performance and is developed in a companion paper.

Keywords: Responsible business, Responsible management, Organizational purpose, Strategic intent, Governance frameworks, Stakeholder alignment, Meaningful challenge

1. Introduction

Corporate purpose has become a defining concern for contemporary organizations. From Fortune 500 companies to startups, firms increasingly articulate intentions that extend beyond profit generation. Yet strategic purpose is only as credible as the structures that support it, and many organizations struggle to translate high-level aspirations into governance, legal form, and management systems that reliably guide decisions and behavior.

This paper addresses that challenge by proposing the Hierarchy of Strategic Intent (HSI), a seven-component architecture—purpose, mission, vision, values, legal form, governance, and management structure—that standardizes the terminology of strategic intent and specifies how each component constrains and enables the ones below it. Table 1 introduces normalized definitions for all seven components.

Table 1: Normalized Definitions of the Seven Components of the HSI

Component	Definition
Purpose	Purpose is cultural and strategic: **Why** we do what we do. An actionable, measurable, outward looking, meaningful challenge. Enable a strategy to solve a problem for those outside the organization, profitably and without creating new problems, (Mayer, et.al 2021).
Mission	Mission is strategic: **What** we do. The operational mechanism of impact (Collins & Porras, 1996).
Vision	Vision: **Where** we're going, and by when (Collins & Porras, 1996).
Values	Values: **Who** we are. The principles and standards that we commit to uphold and to which we are held accountable.
Legal Form	The legal structure chosen to organize the business, through which financial and legal relationships are formalized. A foundation for organizational design.
Governance	The mechanism in which values are institutionalized (Nieto, 2015).
Management Structure	The system that organizes managerial roles, responsibilities, and authority within the organization.

HSI makes two contributions. First, it extends strategic-intent theory by specifying a hierarchy that connects purpose to the administrative systems through which it is enacted. Second, it offers a diagnostic tool: because each component of the hierarchy shapes the ones beneath it, misalignment between any two components helps explain organizational dysfunction, from disengagement to reputational failure. A companion paper introduces the Integrated Performance and Impact Cycle (IPIC) framework (O'Brien and Shockley, in

preparation, 2027), which operationalizes HSI through a tool-agnostic management cycle linking strategic aspiration to measurable, repeatable impact.

The paper unfolds as follows. Section 2 reviews the literature on strategic intent and purpose failure. Sections 3 and 4 examine the role of language and terminological confusion. Section 5 develops HSI's seven components and its diagnostic value. Section 6 illustrates HSI's application to screening and design. Section 7 introduces an HSI-based maturity model. Section 8 discusses implications and future research, and Section 9 concludes.

2. Theoretical Background and Literature Review

The paper's purpose-first orientation draws on the responsible-business philosophy and the Quintuple Bottom Line—Profit, People, Planet, Ethics, and Equity—developed by Kamath at California State University Monterey Bay (O'Brien & Kamath, 2020). This tradition views business as a social institution whose legitimacy depends on how it creates value across multiple constituencies, not solely on financial performance. From this perspective, purpose cannot remain a rhetorical statement separate from organizational design; it must shape the strategies, structures, systems, and accountabilities through which the organization operates.

2.1 The Challenge of Purpose

Organizations increasingly articulate commitments to people, planet, ethics, and equity alongside profit. Yet most struggle to translate these aspirations into coherent structures. Purpose statements, or mission, vision, or values statements confused with purpose, go slack when they describe what a company does or how it wants to be seen, with no real tension to resolve. Only a "meaningful challenge" statement, one that names an external, measurable gap in the world and for whom or how things will change due to the organization's actions, is strategically actionable and can reliably produce impact.

Purpose statements often remain disconnected from governance, decision rights, and management systems, creating a gap between what organizations claim and what they are designed to deliver (Bart & Hupfer, 2004; Henderson, 2020). This gap persists because purpose introduces multi-stakeholder commitments that traditional structures—optimized for financial performance—are not built to support (Freeman, 1984; Mayer, 2018). The challenge, therefore, is not simply to define purpose but to embed it: organizations must ensure purpose shapes strategy, structures, and performance systems in ways that enable consistent, stakeholder-centered outcomes (Hamel & Prahalad, 1989; Kaplan & Norton, 1996).

2.2 Why Purpose Fails in Practice

Purpose often fails in practice because organizations rely on inwardly focused, non-strategic language. Thus, the structural and managerial capabilities needed to support strategy are missing. Purpose statements influence behavior only when embedded in governance, incentives, and operational routines (Bart & Hupfer, 2004). Intentions without reinforcement systems lead to inconsistent execution and fragmented initiatives (Keller & Price, 2011). Three recurring patterns explain why purpose breaks down: structural misalignment, when governance, legal form, and decision rights remain anchored in traditional shareholder-centric models (Mayer, 2018); managerial inconsistency, when performance systems default to financial metrics despite broader purpose commitments (Kaplan & Norton, 1996); and fragmented initiatives, when purpose-focused efforts take the form of isolated projects rather than integrated organizational commitments (Keller & Price, 2011).

Ries (2026) reinforces this diagnosis, arguing that corporate failure is chiefly structural rather than ethical. An HSI analysis of Whole Foods shows how a firm with a genuinely articulated purpose and loyal customers was nevertheless unable to resist activist investor pressure because its Delaware C-Corp structure provided no legal protection for its purpose. HSI's explicit attention to legal form as a seventh architectural component addresses precisely the structural gap that Ries identifies. Directional clarity of the kind HSI provides is a necessary but not sufficient condition for credible impact; it must be paired with the operational discipline detailed in the IPIC companion paper.

3. Language, Reality, and Strategic Clarity

The effectiveness of HSI depends on a disciplined relationship among purpose, mission, vision, values, governance, legal form, and management structure—and that discipline begins with language. When the

meaning of purpose, mission, vision, and values is blurred, the distinction between aspiration and action collapses, making it difficult to design systems that reliably produce measurable impact.

3.1 Words Shape Reality

HSI is rooted in a fundamental principle: the words leaders use to describe organizational intentions shape shared understanding and, over time, help constitute cultural reality through repeated use and institutionalization (Cuginotti, 2025). When organizations fail to distinguish clearly among purpose, mission, vision, and values—treating them as interchangeable or allowing them to drift conceptually—the resulting ambiguity undermines stakeholder communication, strategic focus, and operational coherence (Bartkus et al., 2000).

By contrast, organizations that articulate a clear core ideology and establish precise definitions for each element of strategic intent create the cognitive clarity required for long-term alignment (Collins & Porras, 1996). The Toyota Management System illustrates this vividly. Rooted in The Toyota Way, it uses terms such as *kaizen* ("continuous improvement") with shared, organization-wide meaning; because people throughout the system understand both the vocabulary and the underlying concepts, the Toyota Production System enables fast, coordinated responses and consistent operational excellence (Liker, 2004; Ohno, 1988). Cognitive clarity becomes structural clarity: strategic vocabulary is not a cosmetic exercise but a form of infrastructure. If leaders cannot say clearly what they mean by purpose, mission, vision, and values, they cannot credibly expect governance, legal form, and management to embody those concepts.

3.2 Why Precision Matters

Purpose, mission, vision, and values statements should be short, specific, and easy to remember, yet challenging and inspirational. Patagonia, the outdoor clothing company and certified B Corp, distills its entire reason for being into nine words: "We are in business to save our home planet" (Patagonia, 2024). Such statements illustrate several design principles that underpin HSI: they focus on the organization's ultimate contribution rather than a product category, use everyday language, and remain concise enough to guide decisions at every level. They are also distinct from mission and vision—Patagonia's purpose does not describe specific activities or time-bound goals. Clear differentiation among these elements creates space for the mission to describe what the organization does now and for the vision to specify where it intends to be, and by when.

3.3 Clarity and Brevity as Design Principles

Because language shapes reality, purpose, mission, and vision must be short, memorable, and precise enough to anchor design choices. Brevity forces clarity: a statement that cannot be expressed concisely is difficult to embed consistently. In HSI, examples like Patagonia's are not offered as slogans to copy but as evidence that precision and brevity make structural alignment possible. When leaders define strategic intent with clear, differentiated language, they create the conditions for governance, legal form, and management structure to be evaluated and redesigned in light of that intent. Clear words become the foundation for clear systems.

4. Terminological Confusion in the Literature

If language shapes organizational reality, then inconsistent terminology does more than confuse—it undermines structural alignment. Several foundational studies document the interchangeable use of core strategic terminology. Kirkpatrick (2017, p. 6-14) finds that vision, mission, and values statements "are often confused with each other, partly due to a lack of standard, accepted definitions," and shows that organizations routinely blur the boundaries among these statements. Cady et al. (2011) offer one of the most widely cited analyses of what mission, vision, and values statements truly communicate. Alegre et al. (2018), synthesizing 53 articles, find that "mission statements are widely used in practice but poorly researched in theory" (p. 456) and trace persistent definitional ambiguity surrounding mission statements since the early 1980s. Bart and Baetz (1998) report that 90% of surveyed firms issue mission and vision statements, yet the terminology for what these statements should contain varies widely, contributing to conceptual disorder. This disorder is precisely what HSI seeks to resolve by providing a standardized set of definitions and a structural hierarchy that connects purpose to administrative structures and systems.

5. The Hierarchy of Strategic Intent

5.1 Formalizing Strategic Intent: HSI

The seven integrated components of HSI—purpose, mission, vision, values, legal form, governance, and management structure—create continuity from purpose to impact. Rather than treating these as isolated statements or administrative choices, HSI frames them as a cascading, interconnected architecture (O'Brien, 2024).

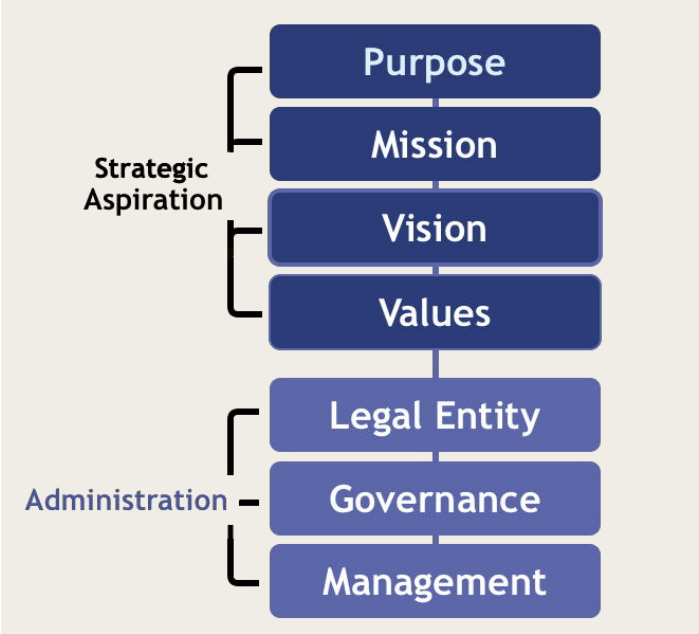


Figure 1: The Hierarchy of Strategic Intent

5.2 The Cascade Principle

HSI operates according to the cascade principle (Lafley & Martin, 2013). Each component informs and constrains the components below it. Lafley and Martin (2013) applied this logic at Procter & Gamble, where they report that the resulting strategy contributed to substantial increases in sales, profits, and market value, and they encourage practitioners to make the cascade a dynamic two-way flow rather than a rigid top-down exercise. Related work on cascading in the Balanced Scorecard reinforces this logic, emphasizing goal alignment throughout the organization (Kaplan & Norton, 1996).

In creating an HSI, the process is iterative and mutually reinforcing rather than strictly linear. Purpose—the foundational element—provides the context within which mission and vision develop. Mission and vision, in turn, both invoke and direct the values the organization must embody to pursue them authentically. Values are reflected in the design of the management organization and shape the choice of governance structures and legal form.

Ries (2026, chap. 3) describes this dynamic, referred to in HSI as the three administrative elements, as building a "governance fortress"—the structural and legal architecture through which organizational ethos is encoded such that it persists through leadership succession and investor pressure. His comparative analysis of Whole Foods and Costco illustrates the difference between purpose embedded rhetorically (the former) and purpose embedded architecturally (the latter), lending empirical weight to HSI's insistence that governance and legal form are design imperatives rather than administrative afterthoughts.

5.3 The Four Aspirational Components of the HSI

The first four components of HSI—purpose, mission, vision, and values—form the organization's aspirational core (O'Brien 2024). They define intent before structure and provide the conceptual foundation from which governance, legal form, and management systems must follow.

5.3.1 Purpose: The existential "why"

Purpose is not the exclusive domain of social enterprises or nonprofit organizations; any business, regardless of sector or ownership structure, can be purpose-driven. The presence of purpose alone does not determine legal structure, governance, or management model; it establishes the foundational intent that should guide subsequent organizational decisions. When purpose is clear and embedded in culture, it generates intrinsic motivation, guides resource allocation and decision-making, and encourages employees to approach their work with genuine enthusiasm and a sense of meaning.

Colin Mayer of Saïd Business School argues that a purpose statement should express a firm's desire "to solve the problems of people and planet profitably and not profit from causing problems" (Mayer et al., 2020, p. 4). Purpose, then, becomes strategy. As Zein Abdalla, a director at Cognizant and board advisor to Mars, Incorporated, observes: "In elevating purpose, we must not lose sight of the fact that it is only powerful when it is part of an integrated ecosystem of vision, strategy, and values" (Enacting Purpose Initiative, 2021, p. 14). Purpose should shape the structure, not be shaped by it.

5.3.2 Mission: The operational "what"

Mission answers the question, "What are we doing now to pursue our purpose?" and describes the mechanism of impact—the services, programs, or offerings that make purpose tangible (Collins & Porras, 2011). A well-crafted mission is specific enough to guide operational decisions yet flexible enough to evolve as capabilities and conditions change. Mission serves as the bridge between aspirational intent and day-to-day execution.

5.3.3 Vision: The temporal future state "where and by when"

Vision defines the future state an organization aims to achieve within a specific timeframe, aligned with its purpose. Temporal anchoring is therefore essential: vision must specify *where* the organization is going and *by when*. Unlike purpose, which is enduring, vision is episodic—it sets a target for a defined strategic period and is revised as the organization progresses. Distinguishing purpose from time-bound vision prevents organizations from mistaking a dreamy notion for near-term strategic objectives.

5.3.4 Values: The behavioral "how" and the bridge to structure

Values articulate the principles and standards the organization commits to upholding. They answer the question, "How do we conduct ourselves?" and serve as the bridge between strategic intent and administrative structure. Values are not aspirational slogans; they are commitments against which stakeholders can hold the organization accountable (Lencioni, 2002). Because values shape expectations for behavior, they naturally inform governance, legal form, and management design. Organizations that claim values they do not structurally support risk cynicism, disengagement, and reputational damage.

Many cooperatives and employee-owned firms use one-member-one-vote ownership and elected boards to codify transparency and democratic participation in their governance structures (Mariño, 2020; Sgarro, 2023; Groban, 2019). When values are honored in rhetoric while organizational structures contradict them, the credibility of the entire enterprise and its brand collapses. HSI therefore emphasizes that values are commitments that must be architecturally embedded in organizational structure, not merely held beliefs.

5.4 The Diagnostic Value of HSI

HSI functions not only as a design framework but also as a diagnostic tool. Because each component of the hierarchy shapes the components below it, misalignment among them often helps explain organizational dysfunction. When firms experience disengagement, stakeholder alienation, ethical failure, reputational damage, or strategic drift, HSI helps locate the structural source of the problem.

Misalignment between values and governance can generate cynicism and weaken commitment, especially when stated principles are not reflected in decision-making authority or oversight systems (Cha & Edmondson, 2006; Çivilidağ et al., 2025). Misalignment between purpose and legal form can likewise create incentive conflicts that default to the entity's dominant logic, often at the expense of stakeholders or the environment (Hayden & Bodie, 2025).

The Etsy case illustrates this dynamic. Etsy publicly positions itself as "the global marketplace for unique and creative goods" (Etsy, 2022) and earned B Corp certification in 2012, but it did not amend its Delaware articles

of incorporation to embed that social-benefit purpose. As a result, directors remained bound by conventional fiduciary duties to shareholders and could not legally prioritize aspirational stakeholder benefits over shareholder returns. This structural gap left the company more vulnerable to activist pressure, leadership changes, and cost-cutting, reshaping its strategic direction and dropping B Corp certification in 2017.

Ries (2026) offers a complementary diagnosis through the concept of "financial gravity"— "the force that no one controls, but everyone obeys." (Ries, 2026, Chap. 3). When legal form and governance are not architecturally aligned with purpose, financial gravity operates by default, pulling behavior toward outcomes leaders may never have intended. HSI's diagnostic value lies in making that gravitational field visible before it becomes irreversible.

6. HSI in Practice: Screening and Design

HSI is designed not only as a conceptual model but as a practical diagnostic and design tool. This section illustrates two primary applications: screening, which uses HSI to assess whether an organization's architecture structurally supports its stated commitments, and design, which uses HSI to build or strengthen that coherence.

6.1 Screening

Screening evaluates whether an organization's stated commitments are structurally supported by its purpose, governance, legal form, and management systems. It does not judge the content of an organization's aspirations; it assesses the coherence between what the organization claims and how it is designed to operate. Effective screening asks three core questions: Is purpose structurally embedded, or does the organization rely on rhetoric unsupported by governance, incentives, or legal commitments (Henderson, 2020)? Do values shape decision rights, or are they disconnected from the mechanisms through which power is exercised (Freeman, 1984)? Are performance and management systems aligned with targets, or do measurement and incentives default to financial metrics alone (Kaplan & Norton, 1996)?

Ries (2026) frames an analogous evaluation through the concept of incorruptible design, asking whether an organization's governance architecture will protect its mission under financial pressure. His diagnostic approach to matching structure with intent is equivalent to the HSI screening question, and his analysis of cases ranging from Costco to Anthropic provides an empirical illustration of what structurally supported purpose looks like in practice. Misalignment, such as purpose statements that are unsupported by legal form or values that are not reflected in governance, signals structural risk (Mayer, 2018); alignment indicates that the organization has the foundations necessary for credible, purpose-driven performance.

6.2 Design Applications

While screening evaluates structural coherence, design focuses on building it—ensuring that purpose, governance, legal form, and management systems reinforce one another rather than compete (Galbraith, 2014). Design begins by clarifying the organization's purpose architecture: the specific commitments implied by its purpose, mission, vision, and values. Research on organizational design shows that alignment across these elements is essential for consistent execution and for avoiding the "say-do" gaps documented in the purpose literature (Birkinshaw & Gibson, 2004; Keller & Price, 2011).

Design prompts leaders to address three core questions: What structures are required to support the organization's purpose and values (Galbraith, 2014)? Where should decision rights reside to ensure accountability for stakeholder outcomes? How should management and performance systems be configured to reinforce stated commitments? These questions move design work beyond symbolic commitments toward operational reality, helping leaders identify where new structures are needed, where existing ones must be adapted, and where misalignments could undermine the organization's aspirations. Design is the constructive counterpart to screening: screening reveals gaps, and design closes them.

7. HSI Maturity Model

The seven components of HSI can also serve as a maturity model for assessing an organization's progress in embedding purpose into its structure and management. Rather than treating purpose alignment as a binary condition, the maturity model recognizes degrees of development across governance, legal form, and management systems. At lower levels of maturity, purpose is primarily rhetorical: expressed in statements but

weakly supported by governance, legal form, or management systems. At middle levels, organizations begin to formalize elements of alignment—clarifying intent and assigning responsibilities—but these elements often remain fragmented. At higher levels, purpose is architecturally embedded and operationally reinforced through coordinated governance and management structures that enable adaptation over time.

Table 1: HSI Maturity Stages

Maturity Level	Characteristics
1. Aspirational	Purpose is stated but not structurally embedded; governance, legal form, and management systems remain largely disconnected from stated commitments.
2. Emerging	Some elements of alignment are visible, such as clearer values or early stakeholder consideration, but implementation is inconsistent and dependent on individual leaders.
3. Structured	Purpose is translated into defined priorities and management routines; governance begins to support stated commitments in more systematic ways.
4. Integrated	HSI components are aligned across the organization; decision rights, incentives, and structure operate as a coherent system.
5. Adaptive	The organization uses continuous learning to refine structures over time; purpose alignment is sustained through evidence, feedback, and structural responsiveness to changing conditions.

The value of the maturity model lies not in ranking organizations for its own sake, but in making developmental gaps visible. An organization may articulate a compelling purpose and mission yet remain at an early maturity level if its governance and legal structure do not protect that purpose under pressure. For boards, executives, and investors, the model provides a structured way to assess the credibility of purpose claims (Henderson, 2020), focusing attention on how deeply purpose is embedded in structures rather than on whether an organization has produced a purpose statement (Freeman, 1984). For managers, the model offers a roadmap for capability-building: moving from Stage 1 to Stage 2 may involve clarifying definitions of purpose, mission, and vision (Kaplan & Norton, 1996), while progress through Stage 3 often involves more fundamental questions about legal form, board composition, and incentive design (Mayer, 2018).

As an integrative framework, HSI inevitably simplifies complex organizational realities and does not capture every nuance of governance, legal design, or the power dynamics and cultural factors that influence how purpose is interpreted and enacted on the ground (Freeman, 1984; Henderson, 2020). The model is theory-driven and practice-informed but not yet validated through large-scale empirical studies; future work could examine how organizations at different maturity stages perform and how transitions between stages occur in practice (Tafuro & Piccaluga, 2025).

8. Implications and Future Research

HSI has three main implications for responsible business scholarship and practice. First, purpose cannot be studied or managed in isolation from governance, legal form, and management systems; the architecture through which purpose is encoded is as important as the statement itself. Second, definitional precision is a prerequisite for structural alignment: organizations that use purpose, mission, vision, and values interchangeably cannot reliably design governance and management systems around them. Third, HSI invites a shift from evaluating purpose as rhetoric to evaluating it as architecture, positioning legal form and governance as design variables rather than administrative defaults.

These implications open several lines of inquiry. One concern is how HSI maturity levels correlate with financial, social, and environmental outcomes across sectors (Tafuro & Piccaluga, 2025). Another is transition dynamics: which governance and legal changes matter most as organizations move between maturity stages, and what conditions enable or impede progress. For practitioners, the central implication is that purpose-aligned performance is inherently architectural: leaders, boards, and investors must attend not only to whether an organization has articulated a purpose, but to whether its governance, legal form, and management systems are designed to sustain that purpose under pressure. Future work should also examine how HSI interacts with the operational cycle developed in the companion IPIC framework, testing whether structurally mature organizations, as defined by HSI, in fact produce more consistent measurable impact.

9. Conclusion

This paper argues that purpose-driven organizations need conceptual clarity and structural discipline to translate aspirational commitments into coherent design. The Hierarchy of Strategic Intent (HSI) addresses a persistent gap in the responsible-business literature: the lack of a coherent model linking purpose statements to organizational design. By standardizing definitions for purpose, mission, vision, and values, and by embedding governance and legal form within strategic intent as design imperatives rather than administrative afterthoughts, HSI gives entrepreneurs, executives, boards, and investors both a design tool for building purpose-aligned organizations and a diagnostic tool for assessing whether existing structures support stated aspirations. In practice, HSI can be used for screening and design, supported by a maturity model that helps organizations assess how deeply their purpose is embedded in their structures. HSI is not proposed as a prescriptive blueprint, but as an integrative architecture for inquiry and practice—one that a companion paper extends into the IPIC, a tool-agnostic management sequence for translating this architecture into repeatable, measurable impact.

Ethics Declaration: Ethical clearance was not required for this research.

AI Declaration: The authors used Perplexity and Claude AI, along with input from colleagues, to improve the clarity and flow of this manuscript. All interpretations, arguments, and final wording are our own.

References

Alegre, I., Berbegal-Mirabent, J., Guerrero, A. and Mas-Machuca, M. (2018) "The Real Mission of the Mission Statement: A Systematic Review of the Literature", Journal of Management and Organization, Vol 24, No. 4, pp 456-473.

Bart, C.K. and Baetz, M.C. (1998) "The Relationship Between Mission Statements and Firm Performance", Journal of Management Studies, Vol 35, No. 6, pp 823-853.

Bart, C.K. and Hupfer, M. (2004) "Mission Statements in Canadian Not-for-Profit Hospitals", Journal of Health Organization and Management, Vol 18, No. 2, pp 92-110.

Bartkus, B., Glassman, M. and McAfee, R.B. (2000) "Mission Statements: Are They Smoke and Mirrors?", Business Horizons, Vol 43, No. 6, pp 23-28.

Birkinshaw, J. and Gibson, C. (2004) "Building Ambidextrous Organizations", MIT Sloan Management Review, Vol 45, No. 1, pp 47-55.

Cady, S., Wheeler, J., DeWolfe, M. and Brodke, J. (2011) "Mission, Vision and Values: What Do They Say?", Organization Development Journal, Vol 29, No. 1, pp 63-78.

Cha, S.E. and Edmondson, A.C. (2006) "When Values Backfire: Leadership, Attribution and Disenchantment in a Values-Driven Organization", The Leadership Quarterly, Vol 17, No. 1, pp 57-78.

Çivilidağ, A., Durmaz, Ş. and Uslu, B. (2025) "Investigation of the Relationship Between Organizational Cynicism and Counterproductive Work Behaviors: A Systematic Review and Meta-Analysis", Frontiers in Psychology, Vol 16, Art 1529798.

Collins, J.C. and Porras, J.I. (1996) "Building Your Company's Vision", Harvard Business Review, Vol 74, No. 5, pp 65-77.

Collins, J.C. and Porras, J.I. (2011) Built to Last: Successful Habits of Visionary Companies, HarperCollins, New York.

Cuginotti, A. (2025) "How Language Shapes Organizational Reality: Insights from Maturana's Theory", [online], Augusto Cuginotti.

Etsy (2022). About etsy. [online] Etsy. Available at: https://www.etsy.com/about [Accessed 2 July 2026].

Enacting Purpose Initiative (2021) Directors and Investors: Building on Common Ground to Advance Sustainable Capitalism, Enacting Purpose Initiative.

Freeman, R.E. (1984) Strategic Management: A Stakeholder Approach, Pitman, Boston.

Galbraith, J.R. (2014) Designing Organizations: Strategy, Structures and Processes at the Business Unit and Enterprise Levels, 3rd ed., Jossey-Bass, San Francisco.

Groban, D. (2019) "Workplace Democracy and Participation", [online], ESOP Law Group.

Hamel, G. and Prahalad, C.K. (1989) "Strategic Intent", Harvard Business Review, Vol 67, No. 3, pp 63-76.

Hayden, G.M. and Bodie, M.T. (2025) "The Problem of Purpose in Corporate Law", Houston Law Review, Vol 62, No. 3, pp 611-633.

Henderson, R. (2020) Reimagining Capitalism in a World on Fire, PublicAffairs, New York.

Kaplan, R.S. and Norton, D.P. (1996) The Balanced Scorecard: Translating Strategy into Action, Harvard Business School Press, Boston.

Keller, S. and Price, C. (2011) Beyond Performance: How Great Organizations Build Ultimate Competitive Advantage, Wiley, Hoboken, NJ.

Kirkpatrick, S.A. (2017). Understanding the Role of Vision, Mission, and Values in the HPT Model. Performance Improvement, 56(3), 6-14.

Lafley, A.G. and Martin, R.L. (2013) Playing to Win: How Strategy Really Works, Harvard Business Review Press, Boston.

Lencioni, P. (2002) "Make Your Values Mean Something", Harvard Business Review, Vol 80, No. 7, pp 113-117.
Liker, J.K. (2004) The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer, McGraw-Hill, New York.
Mariño, M. (2020) "Governance in Cooperatives (Second Part)", [online], Promocoop.
Mayer, C. (2018) Prosperity: Better Business Makes the Greater Good, Oxford University Press, Oxford.
Mayer, C., Eccles, R. and Younger, R. (2020) "Enacting Purpose Within the Modern Corporation", [online], Harvard Law School Forum on Corporate Governance.
Mayer, C., Roche, B. and Jakub, J. (2021) Putting Purpose into Practice: The Economics of Mutuality, Oxford University Press, Oxford.
Nieto, L.M. (2015) "The Cadbury Report 1992: Shared Vision and Beyond", [online], Academia.edu.
O'Brien, K. (2024). The Circle of Responsible Management. [online] Apple Podcasts. Available at: sible-bhttps://podcasts.apple.com/us/podcast/the-responusiness-cookbook/id1726783759?i=1000645660713 [Accessed 19 July 2026].
O'Brien, K. and Kamath, S. (2020) What Is Responsible Business?, California State University Monterey Bay, Seaside, CA.
O'Brien, K. and Shockley, M. (in preparation) *The Integrated Performance and Impact Cycle*. Unpublished manuscript, College of Business, California State University, Monterey Bay.
Ohno, T. (1988) Toyota Production System: Beyond Large-Scale Production, Productivity Press, New York.
Patagonia (2024) "Company Purpose", [online], Purpose Economy.
Ries, E., 2026. Incorruptible: Why Good Companies Go Bad... and How Great Companies Stay Great. [Kindle e-book] New York: Authors Equity.
Sgarro, V. (2023) "Understanding Democratic Decision-Making in Cooperatives", [online], Platform Cooperativism Consortium.
Tafuro, M. and Piccaluga, A. (2025) "Bridging the Understanding of Corporate Purpose with Its Effectiveness", Journal of Management and Organization, advance online publication.

Making Strategy Work Through Staff Agency in Times of Change

Outi-Maaria Palo-oja and Pasi Juvonen
LAB School of Business, LAB University of Applied Sciences, Lappeenranta, Finland
outi-maaria.palo-oja@lab.fi
pasi.juvonen@lab.fi

Abstract: This article examines how staff at a university of applied sciences experience strategic change and understand their own role in implementing the chosen organisational strategy. Previous research on strategic management has often focused on strategy formulation, organisational structures, leadership tools and performance outcomes, while less attention has been paid to employees' everyday experiences of strategy. In knowledge-intensive organisations, this is a relevant question, as strategy must be interpreted and applied across different professional roles and work contexts. The research question is: How do staff at a university of applied sciences perceive their opportunities to influence the organisation's strategy and to implement it during a period of strategic change? The study uses a mixed-methods case study design. The main dataset consists of interviews with staff members working in expert and managerial roles. These interviews are complemented by two rounds of survey responses on employees' opportunities to influence strategic development and work in accordance with the chosen strategy. A third dataset, consisting of regional innovation ecosystem interviews, examines related questions from the perspective of cross-boundary collaboration. Together, the three datasets provide complementary perspectives on staff experiences and the organisational conditions that enable or constrain strategy implementation. The article contributes to the strategic management theme by examining strategy implementation as a process that takes shape in everyday professional work. Staff's commitment to strategy appears to be closely related to perceived inclusion, the clarity and credibility of strategic priorities, and the extent to which strategy can relate to staff members' own work. The regional innovation ecosystem requires shared goals, cross-boundary collaboration, and practices that enable staff and external stakeholders to participate in strategic development. For higher education leaders, the study points to the importance of creating practical conditions in which strategic priorities can be understood, discussed, and carried into daily practice.

Keywords: Strategy implementation, Staff agency, University of applied sciences, Staff experiences, Regional innovation ecosystem

1. Introduction

Strategic change is usually introduced through formal strategies, objectives and organisational structures. However, strategy does not become part of organisational life simply because it has been formulated or communicated. Strategy-as-practice research has shown that strategy is enacted through everyday activities, conversations, routines and decisions (Whittington 1996; Jarzabkowski 2004). It must be interpreted, connected to existing work and translated into everyday practices by the people who are expected to implement it. This makes implementation a particularly important question in knowledge-intensive organisations, where employees often work with considerable professional autonomy and where strategic priorities must be applied across different professional roles and work contexts (Alvesson 2004).

Universities of applied sciences form a relevant context for studying these dynamics. Their staff work across teaching, research, development, innovation activities, administration and regional engagement. Consequently, the same strategy must become meaningful in several professional contexts. In addition, universities of applied sciences operate as regional innovation actors whose strategies extend beyond the internal organisation to collaboration with companies, public organisations and other stakeholders. Implementation therefore involves both internal alignment and collaboration across organisational boundaries, where trust, shared goals and boundary-spanning practices become important (Kaplan and Norton 2006; Long, Cunningham and Braithwaite 2013).

This article examines strategy implementation from the perspective of staff agency. The focus is on how staff members experience their opportunities to influence the strategy and to put it into practice during a period of strategic change. Staff agency is understood here as employees' perceived ability to contribute to strategic goals and influence how they are enacted in practice (Mantere 2008). The study is guided by the following research question: How do staff at a university of applied sciences perceive their opportunities to influence the organisation's strategy and to implement it during a period of strategic change?

Empirically, the study combines staff interviews, two rounds of survey responses, and regional innovation ecosystem interviews. The article shows how strategy implementation is shaped by the relationship between formal strategic direction and everyday professional work. Staff agency develops where employees have opportunities to understand, influence and enact strategy, supported by time, resources, and a clear mandate for action.

2. Theoretical Background

This study approaches strategy implementation as an everyday organisational process rather than the mechanical execution of a predefined plan. Strategy-as-practice research helps examine implementation as everyday strategising, carried out through activities, conversations, routines and decisions (Whittington 1996; Johnson, Melin and Whittington 2003; Jarzabkowski 2004; Jarzabkowski, Balogun and Seidl 2007; Rouleau 2005). In practice, staff members interpret strategic priorities, adapt them to their own work, and take part in carrying them out.

Implementation is more likely to succeed when organisational members can make sense of strategic priorities and connect them with their own tasks, responsibilities and professional identities (Noble 1999; Hrebiniak 2006; Mantere 2005; Vigfússon, Jóhannsdóttir and Ólafsson 2021). This is particularly relevant in knowledge-intensive organisations, where employees often work with considerable professional autonomy and where strategic change cannot be achieved through formal plans alone (Alvesson 2004).

Strategic change also requires sensemaking. Sensemaking refers to the process through which people interpret ambiguous situations and construct plausible understandings of what is happening and how they should respond (Weick 1995; Maitlis and Christianson 2014). In strategy implementation, employees need to understand the purpose of the strategy and how it relates to their everyday work. Communication matters because organisational change is also shaped through language and everyday talk, which influences how staff interpret the change (Thurlow and Helms Mills 2009). Earlier research on higher education mergers has shown that clearly expressed strategy, purposeful goal setting and flexibility can support employees in making sense of new organisational goals and cooperating across previously separate organisational boundaries (Palo-oja and Juvonen 2024). This perspective is useful for analysing how staff understand strategy and their own possibilities to act on it during strategic change.

Strategy work is also mediated by middle managers and boundary-spanning actors. Boundary spanners, brokers and bridges can connect otherwise separated groups and support the flow of knowledge across organisational boundaries (Long et al 2013). Middle managers, in turn, translate strategic intent between top management and operational work, communicate meaning across organisational levels and help make strategic change intelligible and actionable (Floyd and Wooldridge 1992; Rouleau and Balogun 2011). However, strategy implementation is not a simple top-down process. Employees and managers actively reconstruct strategic meanings in informal interactions, and these interpretations may produce both intended and unintended outcomes (Balogun and Johnson 2005; Christie and Tippmann 2024). Thus, strategy is continuously shaped as it is interpreted and enacted in practice.

Staff agency provides the main concept for analysing employees' perceived room for action. Agency refers to the capacity of actors to make choices, take initiatives and influence action within given organisational conditions (Giddens 1984; Emirbayer and Mische 1998). Here, staff agency refers to employees' perceived ability to contribute to strategic goals and influence how they are put into practice. This ability is shaped by the conditions under which people work. Research on strategic agency shows that organisational structures, role expectations, resources, time, support and legitimacy may either open up or restrict opportunities for strategic action (Mantere 2008). Research on organisational change adds a psychological dimension to this view: meaningfulness, psychological safety and self-efficacy can support employees' willingness to engage with change and act proactively (Albrecht, Furlong and Leiter 2023). Employees may therefore be willing to promote strategy, but if they lack practical and psychological conditions for action, strategy may remain distant from everyday work.

Staff agency is also linked to strategic alignment. Formal strategy may emphasise collaboration, regional impact, or multidisciplinary development, as in the case organisation of this study, but implementation requires objectives, resources, indicators, and everyday practices to support the same direction (Kaplan and Norton 2006; Hrebiniak 2006). Recent research also suggests that employees are more likely to act strategically when they can clearly see and understand organisational strategic goals (Hu et al. 2025). If strategic goals and operational systems point in different directions, employees may nevertheless experience a gap between strategic talk and organisational action. In such situations, strategy can become difficult to translate into practice even when staff members understand and support its general aims.

The theoretical framework combines strategy-as-practice, sensemaking, staff agency and strategic alignment to examine how staff understand strategic priorities and how organisational conditions enable or constrain action.

Figure 1 summarises these relationships and the mediating roles of middle managers and boundary-spanning actors.

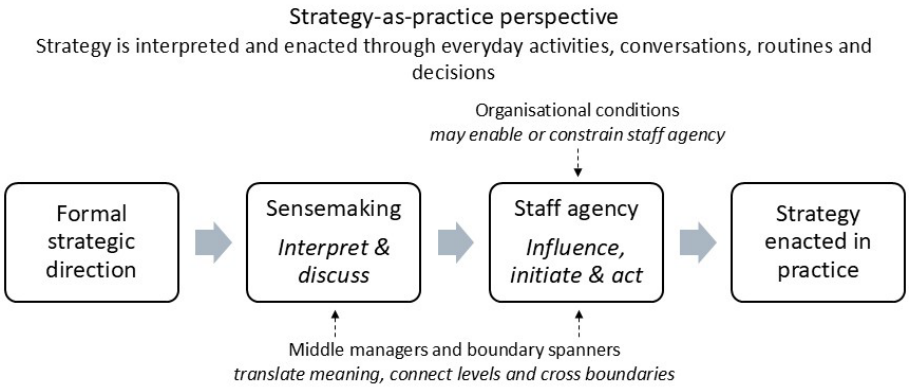


Figure 1: Theoretical framework of strategy implementation through staff agency during strategic change

3. Methodology

The study was conducted as a mixed-methods case study (Yin 2018). This design suited the study because it allowed us to examine both individual interpretations of strategic change and broader organisational patterns in perceived agency. The aim of the study is not to measure the success of the strategy numerically, but to understand how employees interpret the strategy through sensemaking and how they perceive their opportunities to implement it in their everyday work.

We utilised data triangulation (Denzin 2009) and combined three complementary data sets. Combining these materials made it possible to examine barriers to strategy implementation across groups, time points, and operating environments. The staff interviews form the primary empirical basis of the study, while the survey responses and ecosystem interviews are used to contextualise and extend the analysis.

Semi-structured interviews with experts and managers. The primary dataset for this study consists of 18 qualitative in-depth interviews conducted in 2022-2023 with staff members in leadership and expert roles at a university of applied sciences. The participants were divided into a “Pre group” of 13 participants and a ”Post group” of 5 participants, depending on whether they had joined the organisation before or after the major strategic change and organisational merger. This research design enabled us to examine how work history shaped sensemaking around the new strategy and personal agency during organisational change. In the following section, interview data are referred to as “Pre” or “Post” and numbered sequentially.

Two-wave survey data, May and October 2024. The qualitative interview data were complemented by open-ended responses from a strategy survey administered to all staff members of the studied University of Applied Sciences at two time points: May 2024 (N=76) and October 2024 (N=81). The survey data focus on staff members’ experiences of the statement: “I am able to contribute to the achievement of the organisation’s strategic goals in my work.” This two-wave design enables us to examine how strategic understanding and barriers to everyday agency were articulated at different stages of the change process, although the observation period was relatively short, covering approximately six months. In the following section, these data are referred to as “Survey, May” or “Survey, October”.

Regional innovation ecosystem data. The third dataset consists of 16 interviews conducted in 2026 with senior executives, middle managers responsible for external stakeholder cooperation and results, and managers working in the customer interface. Their experience in their current positions ranged from two to over twenty years. The interviews explored practices and challenges in regional innovation ecosystem development and extend the analysis to boundary-crossing strategic agency. The dataset is included because the case organisation’s strategy links staff agency to regional collaboration and boundary-spanning development. These interviews are referred to as “Eco”, and the interviews are numbered sequentially.

The Pre and Post groups are temporal rather than role-based categories and are used primarily to examine staff agency and sensemaking across expert and managerial roles, while the ecosystem interviews provide perspectives on managerial and boundary-spanning strategic work across organisational boundaries.

The data were analysed using abductive, theory-informed thematic analysis. The analysis proceeded iteratively between data-driven observations and the selected theoretical framework. In the first phase, the interview data (Pre/Post) and the ecosystem data were coded openly. Particular attention was paid to how experts articulated the clarity of the strategy, the relationship between their own work and strategic objectives, and the structural resources and barriers encountered in everyday work.

In the second phase, the codes were grouped into broader themes by drawing on the Strategy-as-Practice framework, the role of middle management in sensemaking, and staff members' strategic agency. At this stage, a comparative analysis was also conducted between the Pre and Post groups to identify how historical organisational cultures shaped attitudes and practices.

In the third phase, the qualitative interview findings — such as siloed practices, lack of resources, and the mismatch between words and actions — were triangulated with the open-ended survey responses. In the analysis, the survey data were used to assess whether the themes identified in the interviews were also visible in wider organisational responses.

4. Findings

This section examines how staff at a university of applied sciences exercise strategic agency and implement strategy in the context of organisational change. The analysis identifies three key themes that highlight tensions between strategic expectations and the realities of everyday work, both within the organisation and in the regional innovation ecosystem.

4.1 The Tension Between Freedom and Resources in Everyday Work

Staff describe their opportunities for influence as contradictory: they are expected to advance strategic initiatives but often lack the practical conditions to do so. As one expert who had joined the organisation before the strategic change observes, the new strategic objectives are massive, but the practical means to achieve them are missing:

> *"You've kind of got, like, a team with really ambitious goals? But you don't have any chips to play with... Hopefully they don't end up feeling that kind of frustration, like, 'there's no way this result can actually happen." (Pre1)*

The data suggest that ideas remain fragile unless staff have the resources and structural support needed to take them further. In the ecosystem data, this is described as "freedom to start without dedicated resources". Experts experienced a constant need to negotiate and plead for resources, which weakened their sense of genuine agency and influence.

The survey responses further suggest that this is a cross-cutting organisational problem, adding to the burden of everyday work:

> *"Results are expected, but they don't give you the time or the tools to deliver them." (Survey, October)*

> *"Smaller ideas and suggested initiatives would, in my view, support the strategy, but the work would have to be done on your own time — or you'd have to spend an unreasonable amount of time justifying the whole thing." (Survey, May)*

The ability to influence strategy implementation in everyday work is stifled by heavy bureaucracy and the rigidity of support services. In the interview data, particularly in the Pre group, expert work is described as having become detached from interpersonal interaction and increasingly reduced to feeding information into systems:

> *"It's not, like, personal — it's not work between people, but more like between systems. A person asks something from somewhere, then gets some little piece that they take into a system." (Pre3)*

The Post group participants, who had joined the organisation after the strategic change, were particularly vocal about the need to shift the management paradigm from resource allocation towards expert enablement, bottom-up initiative, and greater attention to the content of strategic work rather than quantitative targets:

> *"I would change the fact that people are seen as resources... we should flip that mindset so that people are thought of as experts. That they don't just appear as hours and as a resource to get things done." (Post2)*

The strategic priority of building regional partnerships also runs against this problem. The ecosystem data emphasise that the lack of structural resources leaves implementation dependent on goodwill alone:

> *"We need to provide credible resources for the work. It will not happen through voluntary effort alone... That would mean that nothing overrides the work — it would have to be your number one priority." (Eco1)*

4.2 Challenges of Sensemaking and the Mismatch Between Words and Actions

Communication and the creation of a shared understanding are important for putting goals into practice. When communication remains abstract, staff describe strategy as something given above, with weak links to broader organisational goals.

In the Pre group, strategy is often experienced as a top-down "implementation" exercise, where translating broad objectives into one's own unit and work is seen as burdensome.

> *"I'm not really a fan of that whole 'cascading it down' thing myself. — The event [where the strategy was revealed] was basically like: it [the strategy] was handed down, and there were these four little bullet points, and they were still in English at that point." (Pre3; quotation marks added by the writers)*

This lack of inclusive sensemaking during the strategy formulation has led to a persistent culture of passive waiting, particularly among the Pre-group. Because the strategic narrative was perceived as dictated rather than co-created, these staff members often hesitate to take proactive ownership, feeling they lack the explicit mandate to act across organisational boundaries:

> *"In a way, we've kind of been waiting, not for a direct assignment, but for some sort of backing to just go ahead and do it... You don't always know who you are supposed to talk to and so on." (Pre5)*

In contrast, the Post-group managers recognise this passivity as a major cultural barrier to strategy implementation. They stress that the organisation cannot reach its ambitious goals if staff wait for top-down operational models instead of exercising active agency:

> *"We will never reach the finish line if we don't take an active grip on these things... we can't just sit around waiting for someone from above to drop a ready-made model on us." (Post5)*

The rationale for the strategy and the "why" questions have remained unclear, which is directly reflected in the survey responses as frustration with abstract management rhetoric:

> *"I still don't understand all the corporate fluff in the strategy, and of course I can't influence everything." (Survey, October)*

> *"For cascading the strategy down, I'd hope for concrete, jointly agreed actions and practical guidelines that would support my own work and development in line with the strategy." (Survey, October)*

The ecosystem data points to an imbalance between talk and action: visions and models are discussed at length, while practical implementation remains absent.

> *"We develop a new model on paper and then hand it over by saying: 'Here it is, now go and implement it.' But do people really commit to it?" (Eco2)*

This pattern was also visible in the Post group, where ideas and discussions did not always lead to implementation because of everyday pressures and the absence of clear operating models.

> *"Everyone liked the idea very much in the meeting… but then it just somehow disappeared." (Eco5)*

4.3 Goal Conflicts, Siloing, and Workplace Tensions

Internal organisational challenges become visible when organisational structures and metrics steer action in a direction that differs from the strategic intent set by management. In a matrix organisation, these structures may produce unintended consequences.

The theoretical concept of strategic alignment is severely challenged when top-down strategic goals, such as multidisciplinary collaboration, conflict with operational control systems, such as unit-specific financial targets. Both Pre and Post participants identified this contradiction as an important barrier to cross-boundary innovation. Participants described how unit-specific targets encouraged them to prioritise their own units' results, even when this worked against the organisation's broader strategic aim of multidisciplinary collaboration. As one Post-group manager explained:

> *"We have somewhat contradictory goals, and that naturally always leads to people primarily looking after their own target first, and right now, that does not serve this joint effort in the best possible way." (Post1)*

A similar concern was expressed in the Pre group.

> *"Multidisciplinarity can't be increased if the metrics are set up in a way that basically tells you not to do multidisciplinary work... 'we need this result now'... The way things are measured should be made into something that genuinely supports multidisciplinarity." (Pre2)*

This rapid, aggressive drive for results has raised concerns about quality. The survey data emphasise that quantitative metrics are taking precedence over human considerations and the broader strategic perspective:

> *"The goals aren't realistic in terms of implementation. Of course, there always need to be goals, but everything in moderation. Unreasonableness can lead to work motivation fading — and in the worst case, to people changing jobs…" (Survey, May)*

> *"There's quite a bit of speed blindness in the institution, though, and that doesn't exactly support that responsible growth." (Survey, October)*

The Trust in Collaboration theme in the ecosystem data emphasises that trust is not merely an attitude, but an operational capability.

> *"At the interface where companies are also involved, there should be people who are able to work together, trust each other, and find sensible ways of operating across organisational boundaries." (Eco8)*

Within the organisation, the trust is undermined by constant changes in direction and the launch of new strategic concepts, such as teams, core teams, and growth platforms, without clear role definitions. As trust in continuity weakens, employees begin to safeguard their own core responsibilities instead of actively contributing to the advancement of change.

> *"The whole deck is really all over the place right now. They're trying to build momentum from really far out... At some point, with some of these things, it might have been a good moment to just leave it alone and let people do their work." (Pre1)*

5. Discussion

This section discusses the findings through the lenses of strategy-as-practice, sensemaking, strategic alignment and staff agency. In the case organisation, staff agency is closely tied to the practical conditions that make strategic action possible. When experts face resource constraints, rigid bureaucracy and fragmented support structures, strategy remains difficult to connect with everyday work. Apparent freedom without adequate resources may therefore create frustration rather than agency. In this sense, a staff agency is shaped by the organisational conditions through which strategy becomes possible in everyday work.

The analysis also points to the limits of one-way communication. Staff need opportunities to discuss, interpret, and translate strategic priorities into their own professional contexts. This was particularly visible in the Pre group, where strategy was often experienced as a one-way process in which employees were expected to implement objectives without genuine participation in shaping them. The Post group showed stronger expectations of proactivity and ownership but also became frustrated when ideas did not turn into action. Participation therefore matters for commitment and for making strategy understandable enough to guide action.

Another central issue is the alignment between strategic goals and operational systems. The case organisation's strategy emphasises multidisciplinarity and ecosystem-level collaboration, yet unit-specific performance targets and budgets may steer staff toward protecting the interests of their own units. In this sense, the matrix organisation produces unintended consequences: instead of supporting shared strategic direction, its control systems may reinforce siloed behaviour, internal competition, and suboptimization. If management wants to promote collaboration, indicators and resources must also reward collaboration and its quality.

The ecosystem data show that these tensions also appear in cross-boundary collaboration. Strategic development across organisational boundaries requires shared goals, trust, coordination, and credible resourcing. It cannot rely only on the most proactive individuals. While such individuals may create new openings and take ownership of development work, they may also become overburdened if they are expected to

compensate for structural gaps. Sustainable strategic change therefore requires conditions that allow a wider group of experts to contribute, rather than leaving development work to the most active individuals.

6. Conclusion

This study examined how staff at a university of applied sciences perceive their opportunities to influence the organisation's strategy and to implement it during a period of strategic change. The commitment to strategy appears to depend on whether staff experience it as meaningful, credible and actionable in their everyday work.

Agency is shaped by the practical conditions of work. Time, resources, and organisational support are needed if strategic priorities are to become part of professional practice. Staff also need opportunities to discuss what the strategy means in their own work, rather than receive it only as a top-down message. Organisational structures, indicators, and goals must support the forms of action that the strategy seeks to promote. Otherwise, strategy may remain a formal framework with only limited influence on everyday practice.

Putting strategy into practice also extends beyond the internal organisation. Regional innovation ecosystem development requires shared goals, trust, coordination, boundary-spanning collaboration, and credible resourcing. Staff agency is therefore relevant to how the organisation aligns its internal work and how it contributes to regional development.

The study is limited to a single-case organisation, and the datasets represent different groups, time periods, and perspectives. The results are not intended for statistical generalisation. However, the mixed-methods design provides a rich understanding of how strategic change is experienced and enacted in a knowledge-intensive organisation. Future research could compare similar processes across several universities of applied sciences or follow how perceived agency develops over a longer period of strategic change.

The main conclusion is that strategy works through people, but not through people alone. Staff agency becomes a strategic resource when employees have enough time, support, mandate and will to connect strategy with their own work and act on it. For higher education leaders, this points to the importance of credible practices that connect strategic priorities to professional work, collaboration, and regional development.

Ethics Declaration: The study followed the principles of responsible conduct of research and was conducted with the permission of the case organisation. Participation was voluntary, and participants were informed about the purpose of the study and the use of the data. The data were handled confidentially, and the quotations have been pseudonymised to reduce the risk of identifying individual participants.

AI Declaration: Artificial intelligence tools were used to support language editing, translation and the refinement of academic wording. The authors reviewed and edited all AI-assisted text and remain fully responsible for the content, interpretation, analysis and conclusions presented in the paper. AI tools were not used to conduct the empirical analysis or to make research-related decisions.

References

Albrecht, S.L., Furlong, S. and Leiter, M.P. (2023) "The psychological conditions for employee engagement in organizational change: Test of a change engagement model", *Frontiers in Psychology*, Vol 14, article 1071924. https://doi.org/10.3389/fpsyg.2023.1071924

Alvesson, M. (2004) *Knowledge work and knowledge-intensive firms*, Oxford, Oxford University Press. https://doi.org/10.1093/oso/9780199259342.001.0001

Balogun, J. and Johnson, G. (2005) "From intended strategies to unintended outcomes: The impact of change recipient sensemaking", *Organization Studies,* Vol 26 No. 11, pp. 1573–1601. https://doi.org/10.1177/0170840605054624

Christie, A. and Tippmann, E. (2024) "Intended or unintended strategy? The activities of middle managers in strategy implementation", *Long Range Planning*, Vol 57 No. 1, article 102410. https://doi.org/10.1016/j.lrp.2023.102410

Denzin, N. K. (2009) *The Research Act: A theoretical introduction to sociological methods*, London, Routledge. https://doi.org/10.4324/9781315134543

Emirbayer, M. and Mische, A. (1998) "What is agency?", *American Journal of Sociology*, Vol 103 No. 4, pp. 962–1023. https://doi.org/10.1086/231294

Floyd, S. W. and Wooldridge, B. (1992) "Middle management involvement in strategy and its association with strategic type: A research note", *Strategic Management Journal,* Vol 13 No. S1, pp. 153–167. https://doi.org/10.1002/smj.4250131012

Giddens, A. (1984) *The constitution of society: Outline of the theory of structuration,* Berkeley, CA, University of California Press.

Hrebiniak, L. G. (2006) "Obstacles to effective strategy implementation", *Organizational Dynamics,* Vol 35 No. 1, pp. 12–31. https://doi.org/10.1016/j.orgdyn.2005.12.001

Hu, F., Lu, X.J., Wei, Z.Q., Peng, J., Liang, S. and Gao, Z.X. (2025) "Employee strategic goal sight and strategic action: The moderating role of openness to experience", *Frontiers in Psychology*, Vol 16, article 1434575. https://doi.org/10.3389/fpsyg.2025.1434575

Jarzabkowski, P. (2004) "Strategy as practice: Recursiveness, adaptation, and practices-in-use", *Organization Studies*, Vol 25 No. 4, pp. 529–560. https://doi.org/10.1177/0170840604040675

Jarzabkowski, P., Balogun, J. and Seidl, D. (2007) "Strategizing: The challenges of a practice perspective", *Human Relations*, Vol 60 No. 1, pp. 5–27. https://doi.org/10.1177/0018726707075703

Johnson, G., Melin, L. and Whittington, R. (2003) "Micro strategy and strategizing: Towards an activity-based view", *Journal of Management Studies*, Vol 40 No. 1, pp. 3–22. https://doi.org/10.1111/1467-6486.t01-2-00002

Kaplan, R.S. and Norton, D.P. (2006) *Alignment: Using the balanced scorecard to create corporate synergies*, Boston, MA, Harvard Business School Press.

Long, J.C., Cunningham, F.C. and Braithwaite, J. (2013) "Bridges, brokers and boundary spanners in collaborative networks: A systematic review", *BMC Health Services Research*, Vol 13, Article 158, https://doi.org/10.1186/1472-6963-13-158

Maitlis, S. and Christianson, M. (2014) "Sensemaking in organizations: Taking stock and moving forward", *Academy of Management Annals*, Vol 8 No. 1, pp. 57–125. https://doi.org/10.5465/19416520.2014.873177

Mantere, S. (2005) "Strategic practices as enablers and disablers of championing activity", *Strategic Organization*, Vol 3 No. 2, pp. 157–184. https://doi.org/10.1177/1476127005052208

Mantere, S. (2008) "Role expectations and middle manager strategic agency", *Journal of Management Studies*, Vol 45 No. 2, pp. 294–316. https://doi.org/10.1111/j.1467-6486.2007.00744.x

Noble, C.H. (1999) "Building the strategy implementation network", *Business Horizons*, Vol 42 No. 6, pp. 19–28. https://doi.org/10.1016/S0007-6813(99)80034-2

Palo-oja, O.-M. and Juvonen, P. (2024) "Enhancing cooperation in HEI mergers", *South Asian Journal of Business and Management Cases*, Vol 13 No. 1, pp. 117–129. https://doi.org/10.1177/22779779241236823

Rouleau, L. (2005) "Micro-practices of strategic sensemaking and sensegiving: How middle managers interpret and sell change every day", *Journal of Management Studies*, Vol 42 No. 7, pp. 1413–1441. https://doi.org/10.1111/j.1467-6486.2005.00549.x

Rouleau, L., and Balogun, J. (2011) "Middle managers, strategic sensemaking, and discursive competence", *Journal of Management Studies,* Vol 48 No. 5, pp. 953–983. https://doi.org/10.1111/j.1467-6486.2010.00941.x

Thurlow, A., and Helms Mills, J. (2009) "Change, talk and sensemaking", *Journal of Organizational Change Management*, Vol 22 No. 5, pp. 459–479. https://doi.org/10.1108/09534810910983442

Vigfússon, K., Jóhannsdóttir, L., and Ólafsson, S. (2021) "Obstacles to strategy implementation and success factors: A review of empirical literature", *Strategic Management,* Vol 26 No. 2, pp. 12–30. https://doi.org/10.5937/StraMan2102012V

Weick, K.E. (1995) *Sensemaking in organizations*, Thousand Oaks, CA, SAGE Publications.

Whittington, R. (1996) "Strategy as practice", *Long Range Planning*, Vol 29 No. 5, pp. 731–735. https://doi.org/10.1016/0024-6301(96)00068-4

Yin, R.K. (2018) *Case study research and applications: Design and methods*, 6th edn, Thousand Oaks, CA, SAGE Publications.

Knowledge Management as a Driver of Competitive Advantage in SMEs: A Multisectoral Study

Nuno Pimenta, Paula Oliveira, Sílvia Faria and Manuel Sousa Pereira
IPVC, Viana do Castelo, Portugal

ig32274@yahoo.com
pcristinaoliveira@esce.ipvc.pt
silviafa@iscap.pt
msousa.manuel@gmail.com

Abstract: This study aims to analyze whether small and medium-sized enterprises (SMEs) recognize knowledge management (KM) as a factor that generates competitive advantage. To this end, a qualitative approach was adopted, through a multisectoral multi-case study based on semi-structured interviews with managers from four SMEs in the manufacturing, software development, construction sector and specialised technical services in the field of electricity sector. The results show that KM is widely recognised by managers as a strategic element essential to creating differentiation and strengthening organizational competitiveness. It was also found that factors such as professional experience, the level of qualification of managers and the competitive intensity of the sector of activity seem to positively influence the valuation of KM as a strategic resource. The conclusions obtained are in line with the existing literature, reinforcing the importance of systematic investment in human resource training and the consolidation of organizational knowledge as a condition for competitive sustainability. However, the study has limitations due to the small sample size, which limits the generalization of the results. We therefore recommend future research with larger samples and complementary methodologies to further explore and empirically validate the evidence identified.

Keywords: Knowledge management, Competitive advantage, SMEs, Intellectual capital, Organisational competitiveness

1. Introduction

From a business perspective, organizations face an environment of intense competition and high levels of competitiveness on a daily basis, being part of a globalized economy shaped by the demands of increasingly dynamic and unstable markets, where new consumption patterns emerge, as well as significant changes in the behaviour, attitudes and expectations of their stakeholders. For Ribeiro (2022), this volatile and uncertain environment, known as VUCA – Volatility, Uncertainty, Complexity and Ambiguity, which was later updated by Filipe (2024) to BANI - Brittle, Anxious, Nonlinear, Incomprehensible, pressures companies to create or adjust their management models in order to find strategies that can provide a quick and adequate response to constant changes and new market challenges. Knowledge is now "a fundamental asset for organizations, synonymous with value creation and competitive advantage that needs to be managed in order to support its creation, adaptation, codification, transfer and application" (Cardoso, 2022, p. v). According to Pinto et al. (2018), the value and competitiveness of an organization encompass its employees and its intangible assets, such as knowledge, policies and processes, which are used to differentiate it from its competitors and, consequently, enable it to generate competitive advantages and produce value. Thus, Knowledge Management (KM) has become a key strategic element for organizations seeking competitive advantage in dynamic and highly competitive markets. By effectively capturing, organizing and sharing information, companies can improve processes, foster innovation and enhance operational performance (Ferraz, 2015). According to the National Statistics Institute (INE), SMEs play a central role in the Portuguese business landscape, representing more than 99% of all companies and serving as the main drivers of employment and innovation. Given their relevance to the national economy, this article aims to analyse whether SMEs recognise KM as a source of competitive advantage. To achieve this objective, a multiple case study was conducted in four Portuguese SMEs from different sectors, allowing for an in-depth exploration of the research topic.

2. Literature Review

We currently live in the age of information and knowledge, where the efficiency and competitiveness of companies depend, above all, on the knowledge they possess and the capacity of their human resources, becoming as important as, or even more important than, physical or financial resources, since innovation, creativity, and technology are considered key factors for the success and growth of organizations (Cardoso, 2022). Since the 1980s, knowledge has gradually been recognised as an asset in organizations, where human capital and social capital play an important role. Cardoso (2022) states that the creation of a knowledge-based

economy stimulates the development of disruptive projects and actions, which is an added value for increasing the competitiveness of organisations.

2.1 Knowledge Management

Nowadays, organisations rely on information systems to manage knowledge due to the increasing need to process large volumes of data. Although data, information and knowledge are interconnected, they are distinct concepts: data are raw, context-free elements that, when organized, become information, which in turn, through analysis and use, generates knowledge (Cardoso, 2022; Pinto et al., 2018). Knowledge is therefore a key organizational asset and a source of competitive advantage, already recognized since the mid-20th century for its role in improving productivity and financial performance (Cardoso, 2022). In this context, Knowledge Management (KM) is essential in knowledge-based economies. According to Dias (2022), KM comprises activities aimed at creating, sharing and applying knowledge across the organization, integrating it into products, services and systems, while ensuring its protection. Advances in Information Technology (IT) have significantly enhanced KM by improving efficiency, knowledge sharing and organizational learning. Nonaka and Takeuchi's framework, highlighted by Dias (2022), distinguishes between tacit knowledge (TK) - acquired through experience and difficult to formalize - and explicit knowledge (EK) - documented and easily shared - (Ferraz, 2015). These forms of knowledge are complementary, although tacit knowledge is often harder to capture and manage (Pinto et al., 2018), which reinforces the need for its formalization to ensure continuity. Organizational knowledge encompasses employees' skills, methods and the continuous incorporation of new knowledge (Pinto et al., 2018). Thus, KM is a continuous process of creating and sharing knowledge, enabling organisations to structure information within organizational memory and achieve greater competitiveness in the market (Pinto, 2015; Ferraz, 2015).

2.2 Applied Models and Theories and the Knowledge Management Cycle

2.2.1 Knowledge spiral

Nonaka and Takeuchi's theory, also known as the Knowledge Spiral Theory, was created by Ikujiro Nonaka and Hirotaka Takeuchi in the 1980s, describing the process of knowledge creation within organizations. This theory results from the interaction of two types of knowledge, TK and EK, whose combination gives rise to four modes of knowledge conversion, forming four quadrants (Nonaka, 1994, cited by Sousa, 2017). Socialization creates shared knowledge, a process that allows, through social interaction, the sharing of TK, enabling the exchange of experiences, perceptions and personal knowledge, whether through observation, imitation or practice; Externalization generates conceptual knowledge, consisting of the transformation of TK into something explicit, a process that takes place through dialogue or shared analysis; Combination gives rise to systemic knowledge through the exchange of standardised and easily understood information. To this end, individuals share knowledge through documents, meetings or communication networks; Finally, Internalization produces operational knowledge, a stage in which members of the organization improve their individual knowledge, in other words, it is the process of incorporating EK into TK (Pinto et al., 2018; Sousa, 2017).

Fig. 1 presents the Knowledge Spiral model proposed by Nonaka and Takeuchi.

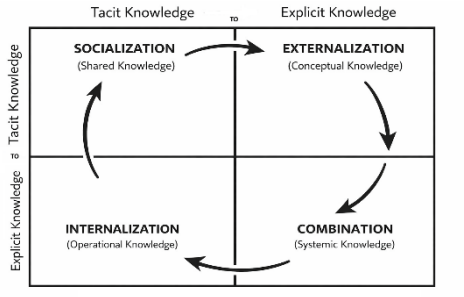


Figure 1: Knowledge Spiral – adapted from Sousa (2017)

2.3 Intellectual Capital Models

Nowadays, knowledge is considered a key strategic asset for business success, acting as a driver of innovation and competitive advantage and being widely recognised as a critical success factor (Correia, Mendes & Marques, 2018, cited by Sousa & Ferreira, 2021). However, its effective management requires new approaches to organizational performance measurement, particularly through the concept of intellectual capital as a

source of value creation (Kianto et al., 2013, cited by Sousa & Ferreira, 2021). Intellectual capital includes knowledge, ideas, inventions and processes that can be transformed into value, extending beyond technological innovation or legally protected intellectual property, and is ultimately understood as the effective use of knowledge rather than mere information (Bontis, 1998, cited by Sousa & Ferreira, 2021). Together with physical and financial capital, intellectual capital constitutes one of the three essential organisational resources and includes human capital (individual knowledge and capacity to generate new knowledge), structural capital (organizational processes, structures and culture), and relational capital (knowledge derived from relationships with stakeholders) (Marr, 2008, cited by Sousa & Ferreira, 2021). In this context, KM is described as a continuous spiral process or cycle comprising six stages: knowledge creation, capture, organization, storage, dissemination and application. This cycle ensures that information is transformed into structured knowledge, made accessible within the organization, and effectively used to improve decision-making, performance and competitive advantage (Fukunaga, 2015).

2.4 Competitive Advantage and Information Technologies

Competitive advantage occurs when a company is able to perform activities differently from its competitors, enabling it to stand out in the market and generate greater value for customers (Oliveira, 2007, cited by Daniel, 2020; Brito & Brito, 2012, cited by Alves et al., 2023). This value is reflected when the perceived benefits of products or services exceed their production costs (Barney & Hesterly, 2007, cited by Alves et al., 2023). However, in an increasingly globalised and competitive environment, achieving sustained competitive advantage has become more challenging due to factors such as intense competition and market expansion. In this context, organizations must adopt effective methods for collecting, processing and sharing information, enabling the creation and management of new knowledge (Silva, 2022). Information Technologies (IT) play a central role in supporting decision-making and Knowledge Management (KM), providing tools for storing, sharing and improving information flows within organizations (Gomes, 2024). At the same time, contemporary society is characterized by high levels of data generation and connectivity, requiring advanced processing capabilities (Freitas Junior et al., 2016). Within this framework, Big Data emerges as a key tool for transforming large volumes of data into useful information and knowledge, ultimately generating added value for organizations (Erickson & Rothberg, 2014, cited by Freitas Junior et al., 2016). Big Data enables the processing of large volumes of data from multiple sources, supporting strategic decision-making within organizations. It includes tools such as Big Data Analytics, focused on advanced data analysis, and Power BI, used for interactive visualization and exploration of information. Big Data Analytics is defined as an integrated process of managing, processing and analyzing large datasets to extract value and sustain competitive advantage (Ren et al., 2017; Wamba et al., 2017, cited by Santos, 2023), offering benefits such as faster and more informed decisions, higher productivity, improved stakeholder engagement, and cost reduction (Loebbecke & Picot, 2015, cited by Santos, 2023). In the context of Business Intelligence, Power BI stands out as a tool that processes data from multiple sources and presents it through reports and interactive dashboards, facilitating decision-making (Silva, 2022). These dashboards enable real-time access to customized information across devices, enhancing collaboration and organizational communication. Additionally, Artificial Intelligence (AI) further strengthens KM by supporting personalized human–computer interaction, content management, and knowledge retrieval based on historical data (Tsui et al., 2000, cited by Nascimento, 2023). According to Nascimento (2023), AI refers to the ability of machines to receive and process data and perform tasks based on extracted information, responding like humans in equivalent situations. Its main benefits for KM include facilitating the capture, use and sharing of knowledge, removing language barriers, and enhancing the visibility of intellectual capital (Taherdoost et al., 2023, cited by Nascimento, 2023). Collaborative platforms such as Microsoft Teams also play an important role in KM by enabling communication, collaboration and information sharing regardless of geographical location, thereby supporting cooperative work processes (Silva, 2007, cited by Couto, 2011). In highly competitive environments, standardization has become a key differentiating factor, with organizations increasingly relying on continuous improvement and effective knowledge management to create value. In this context, ISO certifications are considered structuring tools that support KM by documenting processes, standardizing practices and facilitating the internal sharing of knowledge (Anes, 2018). According to the Portuguese Institute for Quality (2015), quality management systems contribute to organizational performance and sustainable development, reinforcing the role of ISO standards as facilitators of knowledge creation and dissemination (Lin & Wu, 2005; Colurcio, 2009; Choo et al., 2007, cited by Anes, 2018).

2.5 Contextualization of SMEs in Portugal

In Portugal, the use of the SME nomenclature is based on the Commission Recommendation (2003/361/EC of 6 May), which defines three types of companies in the SME category: micro, small and medium-sized enterprises. The classification of a company as an SME is based on a set of criteria, namely: employing fewer than 250 people, having an annual turnover of less than €50 million or an annual balance sheet total of less than €43 million. Tab. 1 shows the criteria for classifying SMEs.

Table 1: Criteria for Micro, Small and Medium-sized Enterprises

SME	No. of Employees (full-time)	Turnover (Annual)	Total Balance Sheet (Annual)
Medium-sized company	< 250	< 50 million euros	< 43 million euros
Small Company	< 50	< 10 million euros	< 10 million euros
Micro Enterprise	< 10	< 2 million euros	< 2 million euros

According to INE (2025), Portugal had 1,576,606 companies in 2024, of which 1,574,963 were SMEs, representing more than 99% of the national business structure. These firms are mainly concentrated in mainland Portugal, particularly in the North and the Lisbon Metropolitan Area, with lower representation in the Azores and Madeira. Pordata (2025) further shows that SMEs are predominantly active in the tertiary sector, especially in trade, accommodation and catering, health and social support, and construction, while agriculture and manufacturing also remain relevant. Overall, SMEs are the backbone of the Portuguese economy, with a significant role in employment and innovation (DGAE). However, their small size often leads to resource constraints that hinder the implementation of effective Knowledge Management (KM) practices, negatively affecting competitiveness (Trindade et al., 2016). These challenges are intensified in a BANI environment, requiring greater organizational adaptability. Moreover, the Deloitte (2023) report highlights strong heterogeneity in the adoption of information technologies among Portuguese SMEs, reinforcing the need for further research, as digital maturity has a direct impact on KM processes.

3. Methodology

The study focused on four SMEs from different economic sectors, namely manufacturing, software development, construction sector and specialised technical services in the field of electricity. All the organizations analyzed fall within the definition of SMEs, in accordance with legally established criteria. The companies were selected by non-probabilistic convenience sampling, taking into account criteria such as accessibility, availability of participants and interest in collaborating in the study. Although this option limits the statistical generalization of the results, it is appropriate for the qualitative and exploratory nature of the research. The small number of cases is justified by the exploratory nature of the study and the intention to prioritise analytical depth over sample size. In qualitative research, interpretative richness and contextual depth take precedence over numerical representativeness, allowing for a detailed analysis of organizational perceptions and practices associated with KM. Data collection was carried out through semi-structured interviews with the managers of the respective companies, as it was considered that they have a strategic and integrated view of organizational practices. The interviews took place between October 2025 and February 2026 and were conducted both in person (at the companies' premises or at a previously agreed location) and remotely, depending on the context and availability of the interviewees. All interviews were recorded, with prior consent, and were subsequently transcribed for full analysis, ensuring confidentiality, anonymity of participants and reliability of the information collected. Tab. 2 presents the characteristics of the companies involved in the study.

Table 2: Characterisation of companies participating in the study

Company code	Business Sector	Year of Incorporation	Number of Employees	Location (Municipality)	Type of Interview
A	Manufacturing	2007	30	Viana do Castelo	On-site (off-site)
B	*Software* Development	1994	55	Porto	Remote

Company code	Business Sector	Year of Incorporation	Number of Employees	Location (Municipality)	Type of Interview
C	Construction	2016	38	Ponte da Barca	On-site (at the premises)
D	Technical Services in the field of Electricity	1977	21	Ponte da Barca	On-site (at the premises)

To complement the characterisation of the companies analysed, Tab. 3 presents the profile of the managers interviewed, as the main decision-makers in the organisations under study.

Table 3: Characterisation of the managers participating in the study

Company code	Position of Interviewee	Years of service in position	Management Experience (years)	Experience in an Organisational Context	Academic Qualifications
A	General Manager	17	20	Multinational	Degree in Engineering and Industrial Management
B	Coordination of the *Software* and Services Department	28	28	Multinational	Degree in Information Technology
C	Managing Partner	10	13	National	Secondary Education (12th year) – Level 3 (QNQ)
D	Manager	6	6	National and Multinational	Civil Technical Course – Level 4 (QNQ)

According to Sá et al. (2021), interviews are particularly suited to interpretative studies and qualitative research objectives, allowing for a descriptive and detailed analysis of the phenomena under study. Taking into account the research question – to understand whether SMEs recognise KM as a factor that generates competitive advantage – three propositions were formulated to guide the analysis: p1: SME managers recognise the importance of Knowledge Management as a competitive advantage; p2: The recognition of Knowledge Management as a competitive advantage in SMEs is positively associated with the level of experience and qualification of managers; p3: SMEs operating in highly competitive sectors tend to value Knowledge Management more as a strategic factor.

4. Analysis and Discussion of Results

The analysis of the data collected was carried out using thematic content analysis, with the three propositions formulated (p1, p2 and p3) as guiding categories. After the interviews were transcribed in full, the discourses were read through, units of meaning were identified and then aggregated into analytical categories, allowing for a comparative interpretation between the different cases studied. The presentation of the results follows the structure of the defined propositions, linking empirical evidence (excerpts from the interviews) with analytical interpretation and theoretical framework.

> *Proposition 1 (P1): SME managers recognise the importance of knowledge management as a competitive advantage.*

The interview analysis shows that managers from companies A, B, C and D recognise the strategic importance of Knowledge Management (KM), although with different levels of formalization and organizational maturity. Companies A and B present more structured KM approaches, supported by ERP systems, digital platforms and ISO certifications (ISO 9001, ISO 14001, ISO/IEC 20000 and ISO/IEC 27001), positioning KM as essential for knowledge retention, organizational continuity and employee integration. In contrast, companies C and D rely mainly on informal and experience-based practices, where tacit knowledge and employees' know-how are central to organizational value and quality improvement. Overall, the results suggest that KM as a competitive advantage depends not only on formal systems, but also on the strategic value attributed to human capital. These findings align with the literature, which recognizes organizational knowledge as a key intangible asset and highlights the role of information technologies in supporting knowledge systematization and long-term competitiveness.

Proposition 2 (P2): The recognition of KM as a competitive advantage in SMEs is associated with the level of experience and qualification of managers.

The comparative analysis of managers' profiles suggests a possible relationship between professional experience, academic qualifications and the strategic value attributed to Knowledge Management (KM). Managers from companies A and B, with higher education and extensive experience, adopt a more structured and systematic approach to KM, integrating it into organizational strategy through certifications, collaborative platforms and formal knowledge-sharing mechanisms. This is reflected in the perception that KM has become increasingly critical due to organizational complexity and the growing importance of human resources, with experience seen as a factor that enhances maturity in knowledge management. In contrast, companies C and D associate KM mainly with practical experience and informal knowledge transmission, although managers also acknowledge that professional experience influences their understanding of KM, indicating a gradual increase in awareness of its strategic relevance. However, given the qualitative nature of the study and its limited sample size, these findings cannot be interpreted as causal, but rather as exploratory evidence. This interpretation is consistent with the literature, which links KM to an integrated organizational perspective (Dias, 2022) and highlights human capital as a key strategic resource for value creation (Sousa & Ferreira, 2021).

Proposition 3 (P3): SMEs operating in highly competitive sectors tend to value KM more as a strategic factor.

The multisectoral analysis suggests that the competitive context can influence the degree of formalization and strategic valuation of KM. Company A operates in a highly competitive international market, with strong price pressure. In this context, the manager states that "having critical mass within the organization allows us to face challenges with greater comfort and efficiency", highlighting knowledge as a mechanism for differentiation from the competition. Similarly, company B operates in a technology sector marked by high turnover and rapid evolution of knowledge. The manager states that "KM is critical to maintaining competitiveness", reinforcing the idea that the ability to respond to the market depends on the systematization and capitalization of internal knowledge. In companies C and D, although competition is significant at the national level, the value placed on KM is more focused on the practical experience and TK of employees. Knowledge is understood as a factor of quality and operational differentiation, but not necessarily formalised in structured systems. These results suggest that sectors with greater competitive intensity and greater technological volatility tend to encourage more formal KM practices. However, as in the previous proposition, the data only allow us to identify interpretative trends and not generalisable relationships. The findings are in line with the literature that argues that effective knowledge management is essential to the survival of SMEs in competitive markets (Ferraz, 2015; Trindade et al., 2016).

5. Conclusions

The present study aimed to analyze whether SMEs recognize KM as a factor that generates competitive advantage, while also seeking to understand how this recognition relates to the profile of managers and the competitive context of the sectors of activity. The results obtained confirm, at an exploratory level, proposition P1, showing that the managers of the four SMEs analyzed recognise KM as an essential strategic element for organisational sustainability. Although with different levels of formalisation, all companies value knowledge as a differentiating resource, either through structured systems (ISO certifications, digital platforms, technical repositories) or through the valorization of the TK accumulated by employees. These findings corroborate the literature that identifies organisational knowledge as an intangible asset central to value creation and competitive differentiation (Pinto et al., 2018; Ferraz, 2015), as well as the contributions of the intellectual capital approach, which highlights human capital as a fundamental strategic resource (Sousa & Ferreira, 2021). Regarding proposition P2, the data suggest a possible association between managers professional experience and academic qualifications and the degree of formalisation of KM practices. Managers with more professional experience and higher education demonstrate a more structured and strategic view of KM, integrating it into formal systems and organisational mechanisms for knowledge retention and sharing. However, the qualitative nature and small size of the sample do not allow for a conclusive or causal relationship to be established, and these results should be interpreted as exploratory evidence. Nevertheless, the results are in line with the literature that argues that KM requires an integrated view of the organisation and leadership capable of recognising knowledge as a strategic resource (Dias, 2022). Regarding proposition P3, the multisectoral analysis suggests that the competitive context influences the degree of value and formalisation of KM. Companies in more dynamic and competitive sectors, namely manufacturing with international exposure and

the technology sector, have more systematic knowledge management and retention practices. This result is consistent with the literature, which argues that in highly competitive and volatile environments, the ability to effectively manage knowledge is a critical factor for survival and differentiation (Ferraz, 2015; Trindade et al., 2016). On the other hand, in sectors where competitiveness takes on more operational contours, KM manifests itself mainly through the valorisation of TK and the practical experience of employees. Taken together, the results reinforce the theoretical perspective that KM should not be understood merely as a set of technological tools or formal procedures, but as a continuous process of creating, sharing and applying organisational knowledge, as advocated by the knowledge spiral and intellectual capital models. It is observed that the maturity of KM practices varies according to organizational and contextual factors, but the recognition of knowledge as a strategic resource is common to all the cases analysed. From a theoretical point of view, the study contributes by highlighting, in a multisectoral context of Portuguese SMEs, the link between KM, leadership profile and competitive context. From a practical point of view, the results suggest that investment in human resource training, knowledge systematization and the adoption of structuring instruments (such as certifications and collaborative platforms) can strengthen organizational robustness and the ability to adapt to competitive and uncertain environments. In summary, the study confirms that KM is recognised by the SMEs analysed as a relevant driver of competitive advantage, even though its formalisation and strategic integration depend on internal and contextual factors, constituting a strategic priority for organisations operating in increasingly complex and competitive environments.

6. Limitations of the Study and Suggestions for Future Research

The study presents some limitations, particularly the small sample size, which restricts the generalisation of the findings to the broader SME context. In addition, data collection relied exclusively on interviews with company managers, without triangulation with other sources such as employees, internal documents, or organizational performance indicators, which may introduce interpretative bias. Moreover, due to its qualitative and exploratory nature, the study does not establish causal relationships but rather identifies trends and contextual associations. Future research should adopt quantitative or mixed-method approaches to further examine the relationship between Knowledge Management and SME organizational performance.

Ethics Declaration: This study was conducted in accordance with ethical research principles. Informed consent was obtained from all interview participants prior to their participation, and their confidentiality and anonymity were fully ensured.

AI Declaration: Artificial intelligence (AI) tools were used solely for language editing and stylistic refinement during the preparation of this manuscript. The authors remain fully responsible for the content, analysis, and conclusions presented in this paper.

References

Alves, Í. G., Aires, R. d., Salgado, C. R. (2023). O potencial de gerar vantagem competitiva de ações do programa agentes locais de inovação (ALI): um estudo de caso em micro e pequenas empresas do Rio Grande do Norte.

Anes, A. T. G. (2018). A Gestão de Conhecimento Organizacional e a ISO 9001:2015. Tese de Mestrado em Informática e Gestão. Instituto Universitário de Lisboa. Lisboa.

Cardoso, A. A. (2022). Gestão do Conhecimento nas Organizações: Impacto na Motivação e na Criatividade. Tese de Mestrado em Gestão de Recursos Humanos. Instituto Superior de Contabilidade e Administração de Coimbra, Coimbra.

Couto, I. M. F. (2011). Desenvolvimento de uma ferramenta colaborativa na área da gestão da informação / conhecimento para aplicação numa unidade de cuidados na comunidade. Tese de Mestrado em Gestão de Organizações. Instituto Politécnico do Porto. Porto.

Daniel, L.A.L. (2020). Business Intelligence como fator para vantagem competitiva. Tese de mestrado em Economia e Gestão da Ciência, Tecnologia e Inovação. Universidade de Lisboa. Lisboa.

Dávila, G. A., Fraga, B. D., Diana, J. B., & Spanhol, F. J. (2014). O ciclo de gestão do conhecimento na prática: um estudo nos núcleos empresariais catarinenses. International Journal of Knowledge Engineering and Management, 3(7), 43–64. https://doi.org/10.47916/ijkem-vol3n7-2014-3

Direção-Geral das Atividades Económicas. (s.d.). Política Empresarial. https://www.dgae.gov.pt/servicos/politica-empresarial.aspx

Dias, D. C. V. (2022). Impacto da Gestão do Conhecimento no Desempenho Organizacional: Um Estudo Empírico em Empresas de São Tomé e Príncipe. Tese de Mestrado em Gestão de Empresas. Universidade Autónoma de Lisboa "Luís de Camões", Lisboa.

Ferraz, S. S. (2015). O impacto da gestão do conhecimento na vantagem competitiva das organizações. Tese de mestrado em Gestão. Universidade Lusíada do Porto, Porto.

Filipe, C. B. (2024). Competências para Liderar: Skills essenciais no mundo BANI. Tese de mestrado em Psicologia. Faculdade de Psicologia e de Ciências da Educação da Universidade do Porto, Porto.

Freitas Junior, J. C. S.; Maçada, A. C. G.; Oliveira, M.; Brinkhues, R. A. Big data e gestão do conhecimento: definições e direcionamentos de pesquisa. Revista Alcance, Itajaí, v. 23, n. 4, p. 529-546, out./dez. 2016. DOI: 10.14210/alcance.v23n4(out-dez).p529-546.

Fukunaga, F. (2015). Cultura Organizacional como Fator de Influência no Ciclo de Gestão do Conhecimento. Tese de Mestrado em Administração. Pontifícia Universidade Católica de São Paulo. São Paulo.

Gomes, R. J. L. (2024). Tecnologias Digitais na Gestão do Conhecimento no Contexto da Gestão de Projetos. Tese de Mestrado em Administração de Gestão de Projetos. Universidade Nova de Julho. São Paulo.

Instituto Nacional de Estatística. (2025). *Empresas (N.º) por localização geográfica (NUTS - 2024) e dimensão; Anual*. Atualizado em 11 de dezembro de 2025.

Instituto Português da Qualidade. (2015). NP EN ISO 9001:2015 — Sistemas de gestão da qualidade: requisitos. IPQ.

Nascimento, E. S. P. (2023). Impacto da Inteligência Artificial na Gestão do Conhecimento das Organizações. Tese de Mestrado em Tecnologias Digitais para o Negócio. Instituto Universitário de Lisboa. Lisboa.

Pinto, A. S., Amaral, L., Peres, P. (2018). Gestão do Conhecimento Organizacional. Vida Económica.

Pordata (2025). *Pequenas e médias empresas: total e por setor de atividade económica.* Atualizado em 22 de dezembro de 2025.

Portugal 2020 (2021). PME Pequenas e Médias Empresas. Obtido de https://portugal2020.pt/glossario/pme-pequenas-e-medias-empresas/

Ribeiro, J. R. G. (2022). Eficácia da Comunicação Interna nas Organizações em Ambiente VUCA. Tese de Mestrado em Gestão. Instituto Politécnico de Gestão e Tecnologia, Vila Nova de Gaia.

Sá, P., Costa, A. P., & Moreira, A. (2021). Reflexões em torno de Metodologias de Investigação.

Santos, L. P. O. (2023). Big data analytics e o desempenho das empresas em Portugal. Tese de Mestrado em Economia Industrial e da Empresa. Universidade do Minho. Braga.

Silva, A. F. C. (2022). Desenvolvimento de dashboards inteligentes para apoio à gestão da produção. Tese de Mestrado em Engenharia de Sistemas. Universidade do Minho. Guimarães.

Silva, F. R. (2022). A informação aliada à Inteligência Competitiva para a Tomada de Decisão: um estudo de caso de uma PME. Tese de Mestrado em Informação Empresarial. Instituto Superior de Contabilidade e Administração do Porto. Porto.

Sousa, N. M. P. C. (2017). Modelo de Gestão do Conhecimento em Contexto de uma Organização da Área das Telecomunicações. Tese de Mestrado em Software de Código Aberto. ISCTE – Instituto Universitário de Lisboa, Lisboa.

Sousa, S., Ferreira, A. (2021). Capital intelectual: revisão de literatura. Gestão e Desenvolvimento, (29), 245–259. https://doi.org/10.34632/gestaoedesenvolvimento.2021.10032

Trindade, E. P., Macedo, M., Gauthier, F. A. O., Botelho, L. L. R., Junior, S. L. (2016). Soluções de Gestão do Conhecimento para Pequenas e Médias Empresas – PME. Perspetivas em gestão Conhecimento.

Team Readiness as a Leadership Capability: A Study of Military Students

Jaromír Pitaš, Petr Čech and Miroslav Mašlej
Faculty of Military Leadership, University of Defence, Brno, Czech Republic

jaromir.pitas@unob.cz
petr.cech@unob.cz
miroslav.maslej@unob.cz

Abstract: Team readiness represents an important concept in contemporary research on management and leadership, particularly within organizations operating in complex, dynamic, and high-risk environments. Increasing demands for adaptability, flexibility, and effective decision-making under conditions of uncertainty underscore the importance of team-oriented competencies. Although leadership development has been extensively studied, relatively limited attention has been devoted to the empirical assessment of team readiness as a multidimensional managerial competence, especially within the context of military education. This paper addresses this gap by examining team readiness through Belbin's Team Role Theory among first-year students at the University of Defence in the Czech Republic. Team readiness is conceptualized as a multidimensional leadership-related competence encompassing the ability to understand team roles, effectively perform them, adapt to changing situational conditions, and actively contribute to collective performance within a structured organizational environment. The analysis further identifies gender differences in the distribution of team roles. After applying the Benjamini–Hochberg correction for multiple comparisons, statistically significant differences remained for the Resource Investigator role (BH-FDR $p = 0.045$) and the Monitor Evaluator role (BH-FDR $p < 0.001$). These roles exhibit a complementary character and may contribute to enhanced team effectiveness and improved decision-making quality. The study contributes to the discussion on leadership development and team competencies by providing empirical evidence regarding the composition of team roles within the military education environment. At the same time, it extends the application of Belbin's model in the fields of leadership and governance and offers practical implications for the systematic preparation of future leaders in organizations operating under demanding and uncertain conditions. The research is based on a quantitative research design and utilizes data collected through the standardized Belbin Team Role Inventory. The research sample consists of more than one hundred students, with each respondent assessed across eight Belbin team roles (excluding the Specialist role). This approach enables an analysis of how individual behavioural predispositions influence team functioning. The most frequently identified dominant role was Shaper, followed by Implementer, while Teamworker also achieved relatively high scores. The highest mean scores were recorded for the Shaper role ($M = 11.34$) and the Implementer role ($M = 10.46$), whereas the lowest mean score was observed for the Plant role ($M = 7.21$). These findings suggest that students are oriented toward structured task management, responsibility, and the maintenance of team cohesion. Conversely, the lower representation of the Plant role points to a limited emphasis on creativity, which may reflect an institutional environment that prioritizes discipline, standardization, and collective performance.

Keywords: Team readiness, Leadership development, Belbin team roles, Military leadership, Managerial competencies

1. Introduction

Leadership research has gradually shifted over recent decades from individually oriented approaches toward team-based and distributed forms of leadership that better reflect the conditions of complex, dynamic, and uncertain organizational environments (Uhl-Bien, Marion, & McKelvey, 2007; Northouse, 2022; Yukl, 2019). In such contexts, organizational performance increasingly results from collective processes, coordination, and shared responsibility rather than from the isolated decision-making of individuals. Teams have thus become the fundamental unit of performance, while leadership effectiveness depends primarily on the quality of interactions among team members (McChrystal et al., 2015; Pearce & Conger, 2003; Kozlowski & Ilgen, 2006).

In this context, increasing attention has been devoted to the role of the individual within team functioning. One concept that effectively captures this shift is team readiness. Team readiness can be understood as an individual leadership competence that reflects the extent to which a person is capable of effectively engaging in team processes and actively contributing to their successful execution (Cannon-Bowers & Salas, 2001; Salas, Sims & Burke, 2005). Unlike approaches that focus primarily on team outcomes, this concept emphasizes the individual level and the underlying capabilities that enable effective team processes.

Despite the growing interest in teamwork and collaboration, team readiness remains relatively underexplored as a distinct analytical construct in empirical research. It is often implicitly embedded within other variables, such as leadership styles or personality characteristics, while its direct conceptualization and measurement have received comparatively limited attention (Mathieu et al., 2008). This gap is particularly evident in the field

of military education, where the ability to function effectively within a team is essential, yet systematic evidence regarding students' individual readiness remains fragmented.

Despite the growing interest in teamwork, recent research demonstrates that shared leadership significantly contributes to team effectiveness and collaborative performance (Klasmeier and Lehmann-Willenbrock, 2025).

Military organizations, in particular, represent environments in which the demands of teamwork are especially pronounced. They are characterized by high levels of structure, risk, and coordination requirements, while simultaneously emphasizing flexibility and the capacity to respond effectively to changing situations (Hannah et al., 2008; Kolditz, 2007; Sweeney et al., 2011). Military education therefore provides a unique opportunity to examine the development of these capabilities at an early stage of professional formation. Furthermore, previous research suggests that students enter this environment with specific value orientations that influence their motivation and subsequent professional development (Binková & Štěpánková, 2023).

To operationalize and empirically examine team readiness, this study employs Belbin's Team Role Model. The model links the abstract concept of individual competence with observable behavioural manifestations, thereby providing a bridge between theoretical conceptualization and empirical analysis (Belbin, 2010; Aritzeta, Swailes, & Senior, 2007; Fisher, Hunter, & Macrosson, 1997).

Despite the extensive body of research on leadership, teamwork, and team effectiveness, limited attention has been devoted to team readiness as an individual leadership competence. Existing studies have focused predominantly on team outcomes, while comparatively less attention has been paid to the behavioural predispositions that facilitate effective participation in collective processes, particularly within the context of military education. This study addresses this gap by operationalizing team readiness through Belbin team roles and examining their distribution among military university students.

The aim of this paper is to analyse the team readiness of military university students, identify dominant role profiles, and assess their implications for leadership development and the cultivation of team-related competencies. The primary contribution of the study lies in its empirical operationalization of a concept that has thus far remained largely theoretical, as well as in its application to the specific context of military education. The analysis also considers gender differences in the distribution of team roles (Eagly & Karau, 2002; Bear & Woolley, 2011). Unlike studies primarily concerned with team performance, this research focuses on the individual prerequisites that support effective teamwork.

The remainder of the paper is structured as follows. First, the theoretical foundations of team readiness and Belbin's Team Role Model are presented. Next, the methodology and characteristics of the research sample are described. The results of the empirical analysis are then presented and discussed. Finally, the concluding section summarizes the main contributions of the study and outlines directions for future research as well as practical implications.

The study contributes to the fields of leadership and governance by conceptualizing team readiness as an individual leadership competence that enables effective participation in collective decision-making, coordination, and team processes within organizations operating under conditions of high uncertainty. By operationalizing team readiness through behavioural role configurations, the study extends existing leadership research beyond individual characteristics toward the distributed and interactional dimensions of leadership.

2. Theoretical Background

2.1 Team Readiness

Contemporary research on leadership and teamwork suggests that effective functioning in complex organizational environments cannot be explained solely by team structure or established processes. Increasing attention is being devoted to the extent to which individual members are prepared to actively engage in these processes (Kozlowski & Ilgen, 2006; Mathieu et al., 2008). Although empirical research frequently focuses on overall team performance, comparatively less attention has been paid to the individual competencies that make such performance possible (Mathieu et al., 2008).

Building on the preceding conceptualization, team readiness can be understood as an individual competence that enables effective participation in team functioning and active contribution to its quality. It is not an outcome of teamwork itself but rather a set of underlying capabilities that allow collective collaboration to operate effectively. These capabilities include, for example, the ability to understand team objectives, adapt

behaviour to specific situational demands, and actively contribute to decision-making and problem-solving processes.

In military organizations, readiness extends beyond personnel and equipment to include behavioural preparedness, adaptability, and the capability to operate effectively within teams. Contemporary leadership literature therefore increasingly considers team readiness as an individual contribution to organizational readiness through collaboration, coordination, and shared decision-making under conditions of uncertainty. Whereas military readiness is traditionally conceptualized in terms of personnel, training, and equipment, the present study focuses specifically on the behavioural dimension of individual team readiness.

Research on teamwork consistently demonstrates that effective team functioning relies on competencies such as communication, coordination, adaptability, and shared understanding (Salas, Sims, & Burke, 2005). The development of these competencies is not automatic; rather, it depends on individuals' active engagement in collective cognitive and behavioural processes. Meta-analytic studies further indicate that these individual characteristics significantly influence the effectiveness of coordinated activities over time (Mathieu et al., 2008).

From a cognitive perspective, team readiness encompasses shared mental models, situational awareness, and the ability to anticipate the actions of other team members (Cannon-Bowers & Salas, 2001). From a behavioural perspective, it is reflected in patterns of interaction, the assumption of responsibility, and responses to situational demands. These behavioural manifestations make the concept amenable to empirical examination (Marks, Mathieu, & Zaccaro, 2001).

One analytical approach to capturing such behavioural manifestations is the concept of team roles. Team roles can be understood as relatively stable patterns of behaviour through which individuals contribute to team functioning. Research suggests that effective teams are characterized by role complementarity that addresses both task-related and relationship-oriented requirements (Kozlowski & Ilgen, 2006). Team roles therefore represent a concrete manifestation of how individual readiness translates into team functioning. Importantly, team roles should not be reduced to formal organizational positions. Rather, they represent informal behavioural tendencies that shape interactions among team members. The adoption of a particular role thus reflects not only competence but also a willingness to engage in a specific form of teamwork. This perspective is consistent with process-oriented approaches to leadership, which conceptualize leadership as a dynamic phenomenon emerging through interactions among individuals (Uhl-Bien et al., 2007).

2.2 Belbin's Team Role Model and the Military Education Context

To analyse team roles, this study employs Belbin's Team Role Model as an analytical framework for capturing the behavioural manifestations of team readiness. Belbin (2010) argues that effective team processes require a balanced representation of action-oriented, thinking-oriented, and relationship-oriented roles, with each role contributing in a distinctive way to team functioning (Belbin, 2010; Aritzeta, Swailes, & Senior, 2007). The model emphasizes role complementarity and rejects the notion of a single optimal leadership style. Empirical studies indicate that Belbin's roles constitute meaningful descriptors of behavioural patterns associated with coordination and interaction within teams (Fisher, Hunter, & Macrosson, 1997; Aritzeta, Swailes, & Senior, 2007). Nevertheless, some scholars have highlighted methodological limitations of the model, particularly concerning the self-assessment nature of the instrument (Broucek & Randell, 1996).

The importance of team readiness is particularly evident within military organizations, which operate under conditions of high uncertainty, risk, and coordination demands (Hannah et al., 2008; Sweeney et al., 2011). Military education therefore represents a distinctive environment in which team readiness can be examined at an early stage of professional development. Military university students are in a formative period during which attitudes toward leadership, responsibility, and teamwork are being shaped (Binková & Štěpánková, 2025). An analysis of their preferred team roles therefore provides insight into the initial configuration of behavioural patterns that contribute to their capacity to function effectively within teams. Previous research suggests that collective values, commitment to service, and a sense of responsibility constitute important foundations for the development of these competencies (Binková & Štěpánková, 2023).

Based on these theoretical premises, the present study conceptualizes team readiness as an individual competence manifested through behavioural patterns captured by team roles. This approach also enables the integration of the individual level of analysis with the dynamics of team functioning. Belbin's Team Role Model therefore serves as a coherent analytical framework for examining how individuals are prepared to contribute to the effective functioning of team processes.

3. Methodology

This study employs a quantitative research design aimed at analysing the team readiness of military university students through Belbin's Team Role Model. It is based on the assumption that individual behavioural predispositions, operationalized as team roles, constitute a relevant indicator of an individual's capacity to function effectively within a team.

The research sample consisted of 126 first-year students enrolled at a military university in the Czech Republic, including 98 men (77.8%) and 28 women (22.2%). Respondents were selected using convenience sampling, which corresponds to the exploratory nature of the study while also reflecting the practical constraints associated with data collection in the military education environment.

Data were collected using the standardized Belbin Team Role Self-Perception Inventory (Belbin, 2010), which is designed to identify preferred behavioural patterns in a team context. The version employed in this study included eight team roles: Plant, Resource Investigator, Coordinator, Shaper, Monitor Evaluator, Teamworker, Implementer, and Completer Finisher. The Specialist role was excluded because it represents a narrowly defined area of expertise rather than a general pattern of team behaviour. The Benjamini–Hochberg procedure was applied because eight simultaneous hypothesis tests were conducted, thereby reducing the probability of false positive findings.

Respondents allocated a fixed total of 70 points across the individual roles, resulting in an ipsative data structure. Consequently, the scores reflect the relative distribution of role preferences rather than their absolute levels. The primary unit of analysis consisted of the scores assigned to individual team roles. For analytical purposes, a dominant role was defined as the role receiving the highest score for a given respondent. In cases where multiple roles shared the highest score, no dominant role was assigned.

The ipsative nature of the data constitutes a methodological limitation because the variables are not statistically independent. An increase in the score of one role is necessarily associated with a relative decrease in the scores of other roles. This characteristic must be taken into account, particularly when interpreting correlation and cluster analyses.

The data analysis was conducted in several sequential steps:

- Descriptive Analysis: First, basic descriptive statistics were calculated for each team role (mean and standard deviation). The objective was to identify the overall distribution of roles within the sample and determine the dominant role profiles.
- Group Difference Analysis (H1): Differences between male and female respondents were assessed using the Mann–Whitney U test, which is appropriate for comparing two independent groups when the assumption of normality is violated. To account for multiple comparisons, the Benjamini–Hochberg correction was applied to control the false discovery rate (FDR).
- Correlation Analysis (H4): Relationships among individual team roles were examined using Spearman's rank-order correlation coefficient, which enables the assessment of monotonic associations without assuming a normal distribution of the data.
- Cluster Analysis (H3): To identify typological groups of respondents, the k-means clustering method was employed. Prior to the analysis, the data were standardized using z-scores. Distances were calculated using the Euclidean metric. The optimal number of clusters was determined based on a combination of result interpretability and silhouette coefficient values.

Based on the theoretical framework, the following hypotheses were formulated:

- **H1:** There are statistically significant differences between male and female respondents in selected team role scores.
- **H2:** The military education environment is associated with a stronger preference for action-oriented and implementation-oriented roles.
- **H3:** Distinct groups of respondents can be identified based on the structure of their team role profiles.
- **H4:** Statistically significant relationships exist among individual team roles.

Given the exploratory nature of the study, hypotheses H3 and H4 should be regarded as complementary and exploratory rather than confirmatory.

4. Results

The first step of the analysis involved examining the basic statistical characteristics of the individual team roles. The descriptive analysis (Table 1) revealed that the highest mean scores were recorded for the Shaper role (M = 11.34, SD = 3.96) and the Implementer role (M = 10.46, SD = 3.30).

Table 1: Descriptive Statistics of Team Role Scores

Role	M	SD
Shaper	11.34	3.96
Implementer	10.46	3.30
Teamworker	8.87	4.22
Completer Finisher	8.13	3.71
Monitor Evaluator	8.06	3.86
Coordinator	8.02	3.31
Resource Investigator	7.91	3.01
Plant	7.21	3.70

Relatively high scores were also observed for the Teamworker role (M = 8.87, SD = 4.22), whereas the lowest mean score was found for the Plant role (M = 7.21, SD = 3.70). The remaining roles exhibited mean values of approximately eight points. From the perspective of Belbin's functional classification of team roles, these findings suggest a stronger representation of action-oriented and implementation-oriented roles, whereas roles associated with idea generation and innovation appear less prominent. This pattern is further supported by the analysis of dominant roles. The most frequently identified dominant role was Shaper (n = 39), followed by Implementer (n = 18). The remaining roles occurred less frequently, indicating an uneven distribution of role profiles within the sample. These findings suggest that roles oriented toward task accomplishment and implementation are more strongly represented than roles focused on interpersonal relations and the generation of new ideas. This pattern is consistent with the characteristics of the military education environment, which emphasizes discipline, task execution, and operational effectiveness. Consequently, the findings are consistent with Hypothesis H2, suggesting that the military education environment may be associated with a stronger preference for action-oriented and implementation-oriented roles.

The Mann–Whitney U test (Table 2) revealed statistically significant differences between men and women in the Resource Investigator role ($p = 0.045$, rrb = −0.31) and the Monitor Evaluator role ($p < 0.001$, rrb = 0.54). Women achieved higher scores in the Resource Investigator role, whereas men scored higher in the Monitor Evaluator role.

Table 2: Gender Differences in Team Role Scores

Role	Men	Women	Raw p-value	Adjusted p-value (Benjamini–Hochberg FDR)	Rank-biserial (positive values indicate higher scores among men)
Plant	6.97	8.07	0.4417	0.5889	-0.0955
Resource Investigator	7.55	9.18	0.0113	0.0454	-0.3130
Coordinator	7.81	8.75	0.3782	0.5889	-0.1093
Shaper	11.35	11.32	0.9226	0.9788	0.0124
Monitor Evaluator	8.79	5.54	0.0000	0.0001	0.5394
Teamworker	8.70	9.43	0.2946	0.5889	-0.1301
Implementer	10.73	9.50	0.0737	0.1964	0.2212
Completer Finisher	8.10	8.21	0.9788	0.9788	-0.0036

Following the Benjamini–Hochberg correction, no statistically significant differences were identified for the remaining team roles. Nevertheless, descriptive trends suggest that women tended to achieve higher scores in

some relationship-oriented roles, whereas men tended to score higher in certain performance-oriented and analytical roles. However, these tendencies were not consistently supported by statistically significant differences across all team roles and should therefore be interpreted with caution. These findings suggest that gender differences are present but are not consistently observed across all team roles. Therefore, Hypothesis H1 is partially supported.

Table 3: Spearman Correlation Matrix of Team Roles

Role	Plant	Resource Investigator	Coordinator	Shaper	Monitor Evaluator	Teamworker	Implementer	Completer Finisher
Plant	1.00	0.07	-0.07	-0.28	-0.07	0.02	-0.37	-0.25
Resource Investigator	0.07	1.00	0.01	-0.16	-0.31	0.04	-0.18	-0.27
Coordinator	-0.07	0.01	1.00	-0.02	-0.20	0.12	-0.26	-0.30
Shaper	-0.28	-0.16	-0.02	1.00	-0.09	-0.45	0.11	-0.01
Monitor Evaluator	-0.07	-0.31	-0.20	-0.09	1.00	-0.32	0.06	0.00
Teamworker	0.02	0.04	0.12	-0.45	-0.32	1.00	-0.30	-0.22
Implementer	-0.37	-0.18	-0.26	0.11	0.06	-0.30	1.00	0.00
Completer Finisher	-0.25	-0.27	-0.30	-0.01	0.00	-0.22	0.00	1.00

Relationships among the individual team roles were examined using Spearman's rank-order correlation coefficient (Table 3).

The analysis identified several statistically significant associations, most of which were of weak to moderate magnitude. The strongest negative correlation was observed between the Shaper and Teamworker roles ($\rho = -0.45$), followed by a negative correlation between the Resource Investigator and Monitor Evaluator roles ($\rho = -0.31$). These relationships suggest a degree of complementarity between task-oriented and relationship-oriented roles and may reflect differing approaches to decision-making and the management of team processes.

The interpretation of these findings should be approached with caution due to the ipsative nature of the data, whereby an increase in preference for one role is necessarily associated with a relative decrease in the preference for other roles. Consequently, the observed correlations do not represent independent relationships among variables but rather the relative interconnectedness of role preferences within the overall allocation of points. Therefore, Hypothesis H4 receives only partial support.

To identify typological respondent profiles, k-means cluster analysis was conducted using standardized data. The analysis revealed several relatively distinct role configurations; however, the silhouette coefficient values indicated only limited separation between the clusters. Consequently, the results should be interpreted as an exploratory typology of role profiles rather than a stable classification of respondents. The analysis identified three relatively homogeneous groups of students (Figure 1), which differed in the structure of their preferred team roles. The first cluster can be characterized as an action-oriented profile, distinguished by higher scores in the Shaper and Implementer roles. The second cluster represents a team-oriented profile, in which the Teamworker and Coordinator roles are predominant. The third cluster exhibits a balanced profile, characterized by a more even distribution of team roles and slightly higher scores in analytically oriented roles.

These findings suggest the existence of distinct role configurations among students, supporting the assumption of variability in team readiness. The results therefore provide support for Hypothesis H3. However, given the relatively weak separation between clusters, this support should be regarded as partial, and the identified profiles should be interpreted with caution.

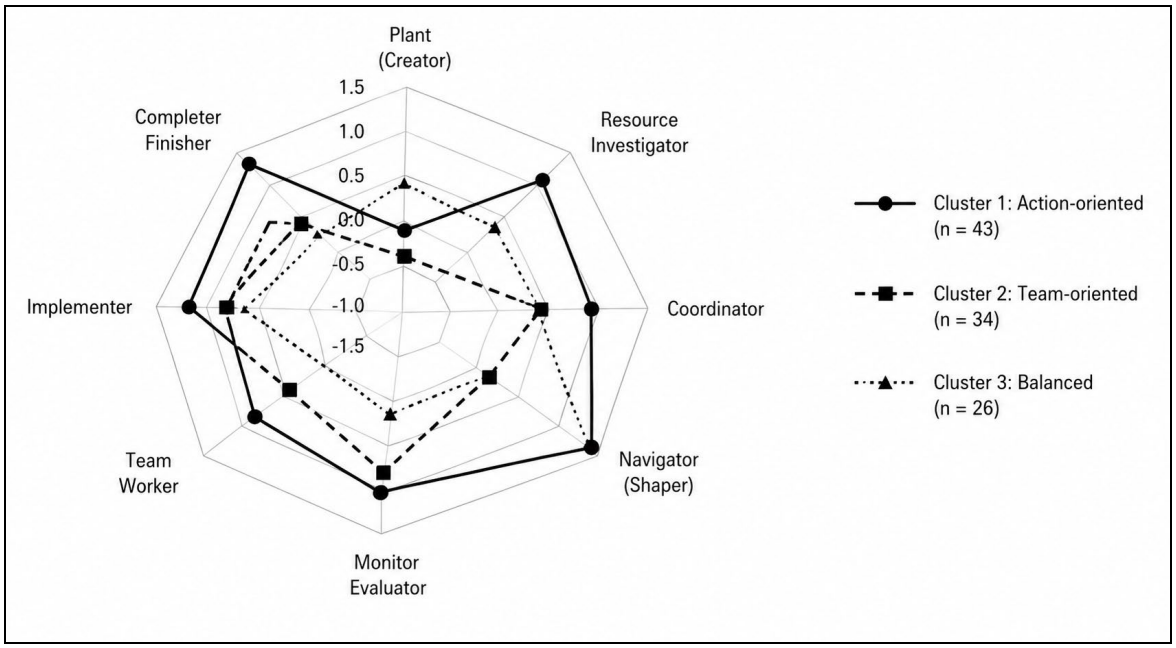


Figure 1: Profiles of Team Roles Across Identified Clusters

5. Discussion and Conclusion

The results of the empirical analysis indicate that the team readiness of military university students is characterized by a specific structure of behavioural predispositions manifested through preferred team roles. The predominance of action-oriented and implementation-oriented roles supports the assumption that the institutional environment of military education shapes individual predispositions toward effective task accomplishment, coordination, and activity management. This finding is consistent with theoretical approaches emphasizing the importance of structure, discipline, and operational decision-making in organizations operating under conditions of uncertainty and high performance demands.

At the same time, the relatively lower representation of roles associated with idea generation suggests a certain imbalance within the observed role configurations. From the perspective of team readiness, this implies that students' individual predispositions are more strongly oriented toward implementation-related than innovation-related aspects of team functioning. Such a profile may be beneficial in terms of stability and efficiency of team processes; however, in dynamic and complex situations, it may limit adaptability and the ability to respond effectively to novel challenges. The findings therefore indirectly highlight the importance of maintaining a balance among different role types as a prerequisite for effective team functioning.

The analysis of gender differences revealed statistically significant distinctions only in the Resource Investigator and Monitor Evaluator roles, while no significant differences were observed for the remaining team roles after correction for multiple testing. These findings suggest that team readiness constitutes a relatively homogeneous characteristic within the examined sample and is not fundamentally differentiated by gender. The identified differences may reflect variations in behavioural preferences that have been discussed in previous leadership and teamwork research. At the same time, the results indicate that the military education environment may contribute to the convergence of behavioural tendencies and to the development of a broadly comparable profile of team-oriented competencies among students.

Important insights into the structure of team readiness are also provided by the analysis of relationships among team roles and the identification of typological groups of respondents. The observed associations confirm that individual roles do not operate in isolation but rather form an interconnected system of relative preferences. Given the ipsative nature of the data, however, these relationships should be interpreted as indicators of the internal structure of role configurations rather than as independent associations between variables. The identified clusters further demonstrate that team readiness is a differentiated construct that may be manifested through various combinations of behavioural predispositions. These configurations support the assumption that effective team functioning is primarily based on role complementarity and the mutual reinforcement of diverse behavioural contributions.

From a theoretical perspective, the study contributes to leadership research by linking the concept of team readiness with specific behavioural manifestations captured through team roles. This approach enables team readiness to be understood as an individual leadership competence that is expressed through interactions among team members and contributes to the formation of collective processes. In doing so, the study shifts the focus from a static view of individual characteristics toward a dynamic and interactional understanding of leadership.

From a practical perspective, the findings suggest that the development of team readiness should focus not only on strengthening dominant roles but also on deliberately cultivating less represented behavioural predispositions, particularly those related to creativity, innovation, and adaptability. Furthermore, the identification of role profiles may be utilized in team composition to ensure internal balance and complementarity. Such an approach may contribute to enhancing both team effectiveness and the quality of decision-making processes in environments characterized by high demands for coordination and collaboration.

The interpretation of the findings should nevertheless take into account several methodological limitations. The ipsative nature of the data restricts the interpretation of statistical relationships among individual roles, while the use of a self-report instrument may introduce a degree of response bias. In addition, the specific context of military education limits the generalizability of the findings to other organizational settings.

In conclusion, the team readiness of military university students can be characterized as a structured yet differentiated set of behavioural predispositions reflected in various role configurations. The dominance of action-oriented roles reflects the characteristics of the examined environment, whereas the identified variability in role profiles highlights the importance of diversity and complementarity for effective team functioning. Future research should focus on a deeper examination of the relationship between role configurations and actual team performance, as well as on the longitudinal development of these predispositions over time. The interpretation of the findings should nevertheless take into account several methodological limitations the number of female respondents was relatively small, separate cluster analyses by gender were not considered statistically robust and were therefore not performed.

Ethics Declaration: This research was conducted in accordance with the ethical standards of the University of Defence. Participation in the study was fully voluntary, and informed consent was obtained from all respondents. The data were collected anonymously, and no personally identifiable information was recorded. In accordance with institutional policies, the study did not require formal ethical clearance.

AI Declaration: The authors take full responsibility for the content of this manuscript. Artificial intelligence tools were used in a limited capacity to support language editing and text refinement. All analytical procedures, interpretations, and conclusions were developed independently by the authors.

References

Aritzeta, A., Swailes, S. and Senior, B. (2007) “Belbin’s Team Role Model: Development, Validation and Application for Team Building“, *Journal of Management Studies*, Vol 44, No. 1, pp 96–118. https://doi.org/10.1111/j.1467-6486.2007.00666.x

Bear, J.B. and Woolley, A.W. (2011) “The Role of Gender in Team Collaboration and Performance“, *Interdisciplinary Science Reviews*, Vol 36, No. 2, pp 146–153. https://doi.org/10.1179/030801811X13013181961473

Belbin, R.M. (2010) *Team Roles at Work*, 2nd ed., Butterworth-Heinemann, Oxford.

Binková, K. and Štěpánková, E. (2023) “Understanding the Motivation of Young Adults to Enlist and Pursue Military Leadership Studies“, Paper read at XIXth European Conference on Management, Leadership and Governance. Paris-Nanterre, France, November. https://doi.org/10.34190/ecmlg.19.1.1901

Binková, K. and Štěpánková, E. (2025) “Stress Management Among University Students in Security and Defence Fields“, Paper read at XXIst European Conference on Management, Leadership and Governance. Paris-Nanterre, France, November. https://doi.org/10.34190/ecmlg.21.1.4313

Broucek, W. and Randell, G. (1996) “An assessment of the construct validity of the Belbin Team Role Self-Perception Inventory“, *Journal of Occupational and Organizational Psychology*, Vol 69, No. 4, pp 373–388. https://doi.org/10.1111/j.2044-8325.1996.tb00625.x

Cannon-Bowers, J.A. and Salas, E. (2001) “Reflections on shared cognition“, *Journal of Organizational Behavior*, Vol 22, No. 2, pp 195–202. https://doi.org/10.1002/job.82

Eagly, A.H. and Karau, S.J. (2002) “Role Congruity Theory of Prejudice Toward Female Leaders“, *Psychological Review*, Vol 109, No. 3, pp 573–598. https://doi.org/10.1037/0033-295X.109.3.573

Fisher, S.G., Hunter, T.A. and Macrosson, W.D.K. (1997) “Team or group? Managers’ perceptions of the differences“, *Journal of Managerial Psychology*, Vol 12, No. 4, pp 232–242. https://doi.org/10.1108/02683949710174838

Hannah, S.T., Avolio, B.J., Luthans, F. and Harms, P.D. (2008) "Leadership efficacy: Review and future directions", *The Leadership Quarterly*, Vol 19, No. 6, pp 669–692. https://doi.org/10.1016/j.leaqua.2008.09.007

Klasmeier, K.N. and Lehmann-Willenbrock, N. (2025) *Shared Leadership 2.0: Taking Stock and Looking Forward*. Cambridge University Press. https://doi.org/10.1017/9781009560467.

Kolditz, T.A. (2007) *In extremis leadership: Leading as if your life depended on it*. Jossey-Bass, San Francisco.

Kozlowski, S.W.J. and Ilgen, D.R. (2006) "Enhancing the Effectiveness of Work Groups and Teams", *Psychological Science in the Public Interest*, Vol 7, No. 3, pp 77–124. https://doi.org/10.1111/j.1529-1006.2006.00030.x

Marks, M.A., Mathieu, J.E. and Zaccaro, S.J. (2001) "A temporally based framework and taxonomy of team processes", *Academy of Management Review,* Vol 26, No. 3, pp 356–376. https://doi.org/10.2307/259182

Mathieu, J.E., Maynard, M.T., Rapp, T. and Gilson, L. (2008) "Team Effectiveness 1997–2007: A Review of Recent Advancements and a Glimpse Into the Future", *Journal of Management*, Vol 34, No. 3, pp 410–476. https://doi.org/10.1177/0149206308316061

McChrystal, S., Collins, T., Silverman, D. and Fussell, C. (2015) *Team of Teams*, Penguin, New York.

Northouse, P.G. (2022) *Leadership: Theory and Practice*, 9th edn., SAGE, Thousand Oaks.

Pearce, C.L. and Conger, J.A. (2003) *Shared Leadership: Reframing the Hows and Whys of leadership*. SAGE, Thousand Oaks.

Salas, E., Sims, D.E. and Burke, C.S. (2005) "Is there a "Big Five" in Teamwork?", *Small Group Research*, Vol 36, No. 5, pp 555–599. https://doi.org/10.1177/1046496405277134

Sweeney, P.J., Matthews, M.D. and Lester, P.B. (2011) *Leadership in Dangerous Situations,* Naval Institute Press, Annapolis.

Uhl-Bien, M., Marion, R. and McKelvey, B. (2007) "Complexity leadership theory: Shifting leadership from the industrial age to the knowledge era", *The Leadership Quarterly*, Vol 18, No. 4, pp 298–318. https://doi.org/10.1016/j.leaqua.2007.04.002

Yukl, G. (2019) *Leadership in Organizations*. Global edn., Pearson Education, Harlow.

Competence Development as a Leadership and Governance Practice in Micro and SMEs: Observations from EK Inno Workshops in South Karelia, Finland

Heli Rantanen
LAB University of Applied Sciences, Finland

heli.rantanen@lab.fi

Abstract: Micro, small and medium-sized enterprises (SMEs) are central to regional innovation and economic resilience, yet their competence development is increasingly constrained by skills shortages, environmental uncertainty and the cumulative demands placed on entrepreneurs. Earlier studies show that competence development in micro and SMEs is often informal, fragmented and strongly dependent on individual owner-managers, with limited integration into leadership and governance practices (Taipale Erävala, Muhos & Ala Rämi, 2021; Wallo & Coetzer, 2026). These conditions restrict firms' ability to predict future competence needs, use customer knowledge systematically and sustain entrepreneurial well-being. This empirical paper presents observations from competence development workshops conducted in 2026 with micro and SMEs in South Karelia, Finland, within the EK Inno project. The workshops approached competence development as an everyday leadership and governance practice embedded in managerial work rather than as a distinct training activity. Analysis of the workshop discussions and facilitated exercises found four recurring and interrelated competence-related challenges. First, skills shortages were experienced primarily as difficulties in accessing relevant ability rather than as recruitment problems, highlighting the importance of flexible, ecosystem-based and shared competence solutions beyond firm boundaries (Soomro, Memon & Soomro, 2025). Second, future-oriented competence development was hindered by limited time and resources for systematic foresight. Facilitated reflection supported entrepreneurs in linking technological, regulatory and market changes to concrete competence needs, reinforcing learning-oriented leadership under uncertainty (Wallo & Coetzer, 2026). Third, although firms reported close customer relationships, customer knowledge was often tacit and person-dependent; structured customer mapping enabled clearer alignment between competence development and evolving customer needs (Taipale Erävala et al., 2021). Fourth, entrepreneur well-being appeared as a foundational condition influencing the capacity to learn, reflect and lead innovation processes. The paper offers practical insights into how competence development can be supported as a collective, leadership-driven and ecosystem-based practice in regional SME contexts. The findings are relevant for practitioners and policymakers looking for low-threshold, human-centred approaches that integrate leadership, governance and entrepreneurial resilience.

Keywords: Competence development, SMEs, Leadership, Governance, Skills shortage, Well-being

1. Introduction

This paper focuses on competence shortages as a central structural bottleneck and explores how competence development can be understood as leadership and governance practice in SMEs.

The research question guiding this paper is:

How can competence development be embedded in everyday leadership and governance practices to support SME innovation and resilience?

2. Theoretical Background

2.1 Competence Development in SMEs

Company's competencies are one of the key competitive advantages. Maintaining and developing these competencies is primarily the responsibility of the firm. Strong ability also contributes significantly to a positive corporate image.

A skills gap refers to a situation in which existing competencies do not match the skills required by tasks, projects or strategic goals. As a result, competencies must be developed through training, recruitment or the use of external ability.

This aligns with broader European evidence, which shows that skills shortages have increased significantly due to technological change, demographic shifts and the green transition (Bachmann et al., 2024). In SMEs, the situation is intensified by the need for multi-skilled employees who can perform diverse tasks.

Beyond static competence gaps, recent research emphasizes that SMEs must develop dynamic capabilities that enable continuous adaptation to changing technological and market conditions. This requires not only finding

skill shortages but also systematically integrating learning, knowledge acquisition and capability renewal into strategic management (Soomro et al., 2025; Taipale-Erävala et al., 2021).

Overall, these theoretical aspects suggest that competence-related challenges in SMEs are not solely a matter of resource scarcity but reflect broader issues related to capability management, knowledge integration, and strategic alignment.

While artificial intelligence is increasingly adopted in SMEs, its use often stays limited to administrative support rather than more advanced knowledge-intensive applications. This suggests that the full potential of AI for supporting competence development, decision-making, and innovation processes stays underutilized (Saura et al., 2021).

2.2 Leadership and Governance

Furthermore, recent research emphasizes the role of learning-oriented leadership and continuous competence development in enhancing both well-being and innovation outcomes in SMEs. In volatile environments, such practices can strengthen resilience, support employee and entrepreneur well-being, and enable more adaptive and forward-looking organizational behaviour (Wallo and Coetzer, 2026; Soomro et al., 2025).

Leadership and governance play a critical role in enabling organisations to predict and respond to future challenges through the integration of foresight capabilities. In uncertain and rapidly changing environments, leadership increasingly requires the ability to combine strategic visioning with anticipatory thinking. Foresight has been conceptualized as a core competence that supports leaders in interpreting complex changes and guiding organizations towards long-term sustainability (Hines et al., 2017). In this sense, leadership extends beyond operational decision-making to include the capacity to shape shared future orientations, foster organizational learning, and build resilience.

From a governance perspective, the integration of foresight strengthens organizational capacity for adaptive and forward-looking decision-making. Strategic foresight enables organizations to explore alternative futures, find emerging risks and opportunities, and align present actions with long-term goals. In the context of SMEs, leadership and governance are often closely intertwined, as decision-making is concentrated in the hands of entrepreneurs. However, the operational focus and resource constraints typical of SMEs may limit their ability to engage in long-term strategic thinking. Earlier research highlights that the adoption of foresight practices can enhance strategic learning, innovation, and adaptability in SMEs, thereby strengthening both leadership effectiveness and governance capacity (Cornelisse & van Klink, 2024; Gold & Jones, 2023).

2.3 Foresight and Future Competence Needs

In SME contexts, competence development is connected to interrelated dimensions that shape firms' capacity for renewal and innovation. First, foresight supports the identification of future competence needs by helping firms interpret technological, regulatory, and market-related changes (Hines et al., 2017; Dörr et al., 2024; Gold & Jones, 2023). Second, customer knowledge is central to aligning competence development with evolving market needs, particularly in SMEs where customer understanding is often tacit and person-dependent (Taipale-Erävala et al., 2021; Appolloni et al., 2023; Saura et al., 2021). Third, entrepreneurial well-being influences the capacity to learn, reflect, and engage in innovation, especially in resource-constrained firms where the entrepreneur's personal capacity is closely tied to organisational development (Stephan, 2018; Block et al., 2022; Hansson et al., 2022). In SMEs, foresight can be understood as the ability to predict changes in the operating environment and translate them into practical competence needs. Rather than formal long-term planning, SMEs receive help from flexible and reflective approaches that link strategy with everyday operations.

Foresight is increasingly conceptualised as a core competence that enables individuals and organisations to predict, interpret, and shape future developments in uncertain and dynamic environments. Within this perspective, foresight is not limited to analytical techniques such as trend analysis or scenario building, but rather encompasses a broader set of cognitive, social, and reflective capabilities. The Foresight Competency Model developed by Hines et al. (2017) emphasises that effective foresight practice integrates analytical skills, systems thinking, communication, and ethical awareness, positioning foresight as a key resource for building sustainable competitive advantage. In line with the resource-based view, organisational competitiveness increasingly depends on human capital and the ability to combine intangible competencies, such as foresight capabilities, with strategic decision-making processes. This highlights the importance of embedding foresight skills into professional development and education systems to ensure future readiness.

From the perspective of future competence needs, foresight plays a critical role in finding and responding to evolving labour market demands and innovation opportunities. Research on labour market foresight proves that future skills are best understood as diversified competence portfolios that combine digital, social, and strategic capabilities, including foresight-oriented thinking (Kanzola & Petrakis, 2024). At the organisational level, foresight can also be viewed as a learning process that supports innovation and strategic renewal. Studies on small and medium-sized enterprises (SMEs) show that futures and foresight learning enables firms to find emerging opportunities, generate innovative ideas, and translate future-oriented insights into actionable innovation strategies (Gold & Jones, 2023). This perspective emphasises that foresight is not only a predictive activity but also a capability that enhances organisational learning, adaptability, and long-term resilience in rapidly changing environments.

The SMEs resource base appears to be a key determinant of the degree of systematicity in its development activities. In the smallest firms, innovation is often contingent upon the competencies, available time, and networks of the entrepreneur or a limited number of key individuals. In contrast, in larger firms, development efforts can be more readily organized, budgeted, and monitored. (Rantanen et al., 2026).

The significant role of the owner-manager is particularly significant in this process. SME strategy formation is highly person-dependent, and individual capabilities, experience and attitudes strongly influence whether systematic foresight is applied (Dörr et al., 2024).

SMEs actively collaborate with other firms, which helps knowledge exchange and the emergence of innovative ideas. Together with internal development practices, this shows that the region shows a strong innovation climate. However, this does not always fully translate into business growth. The primary bottlenecks appear to be related to the scaling, commercialization, and systematic exploitation of innovations, rather than to the generation of ideas itself. (Rantanen et al., 2026).

2.4 Customer Knowledge and Market Adaptation

Following the COVID-19 pandemic, SMEs reported ongoing challenges in customer acquisition and retention. Changes in operating environments have required firms to adopt innovative approaches to marketing and sales. Research shows that effective customer acquisition increasingly depends on digitalization, data-driven decision-making and customer-centric strategies (Petropoulou et al., 2024; Dyba and Di Maria, 2024). SMEs must move beyond local markets and use digital tools to reach new customer segments.

Beyond the adoption of digital tools, recent research highlights that digital transformation in SMEs requires a broader shift towards integrated, data-driven business models and strategic renewal. Firms that successfully combine digitalization with customer-centric thinking are better positioned to adapt to changing market conditions and build sustainable competitive advantage (Dyba and Di Maria, 2024; Petropoulou et al., 2024).

The literature emphasizes that integrating data analytics, segmentation techniques and continuous learning practices enhances firms' ability to understand and respond to evolving customer needs. The reliance on tacit, individual-based customer knowledge reflects a broader challenge in SMEs, where limited formalization of processes can constrain organizational learning and scalability. Transforming implicit knowledge into structured, shareable insights is essential for improving decision-making, enabling systematic customer engagement, and supporting continuous innovation (Appolloni et al., 2023; Saura et al., 2021).

Taken together, these theoretical aspects suggest that customer acquisition challenges in SMEs are not merely operational issues but reflect broader limitations in strategic orientation, knowledge management, and capability development.

2.5 Entrepreneur Well-being

Entrepreneurial well-being appeared as a critical determinant influencing competence development, organizational performance, and innovation capacity. Small and medium-sized enterprise (SME) entrepreneurs work under conditions characterized by important levels of responsibility, workload, and uncertainty, all of which can negatively affect mental health and long-term performance outcomes (Block et al., 2022; Erschens et al., 2024). These structural pressures are not only individual-level concerns but also systemic factors that shape firms' ability to engage in continuous learning, renewal, and innovation.

In addition to well-being-related constraints, structural skill gaps further limit SMEs' innovation capacity. Existing evidence shows that skill shortages and mismatches are still a persistent challenge across Europe, particularly affecting SMEs with limited access to specialized ability (Bachmann et al., 2024). These constraints

not only hinder innovation activities but may also increase the cognitive and emotional burden on entrepreneurs, thereby reinforcing the link between competence constraints and well-being.

Well-being not only supports individual coping but also serves as a foundational resource for innovation and growth. Thus, promoting entrepreneurial well-being should be understood as a strategic priority rather than a peripheral concern, particularly in SME contexts where resource constraints intensify the interdependencies between human capacity and organizational outcomes.

3. Methodology

This exploratory qualitative study draws on competence development workshops conducted with 15 SME entrepreneurs in South Karelia, Finland. The paper examines how competence development can be embedded in everyday leadership and governance practices in resource-constrained SME contexts. Project group designed workshops to support SME participants in identifying competence-related challenges and development needs connected to business commercialization. Participants were SME entrepreneurs who were interested in developing their firm's competences to enhance business commercialization. The workshops focused on practical approaches to competence development, including competence mapping, performance discussions, skills matrices, and the alignment of business development with workforce capabilities.

To enhance trustworthiness, observers documented all discussion themes systematically during the workshops. The analysis focused on recurring patterns that emerged across participants rather than isolated comments from individual entrepreneurs. The purpose was to identify shared competence-related challenges and development opportunities within the SME context.

In this study, the Learning Café discussions focused on three themes: competence development, future competence needs, and entrepreneurial well-being. Participants discussed practical challenges, exchanged experiences, and identified development needs related to their business operations. The discussions generated both verbal and written material. Observer documented material during the workshops.

The collected material was analyzed using thematic analysis. First, the workshop notes and discussion summaries were reviewed repeatedly to gain familiarity with the data. Second, recurring observations and expressions related to competence development were identified and coded. Third, similar codes were grouped into broader themes reflecting common patterns across participants' experiences.

The analysis resulted in four main themes: (1) skills shortages and access to expertise, (2) future competence needs and foresight, (3) customer knowledge and market adaptation, and (4) entrepreneurial well-being. These themes form the basis of the findings presented in this paper.

4. Insights from SME Workshops in Southern Karelia

Project group choose the Learning Café method because it enables the co-creation of knowledge and collective sensemaking among participants. Rather than focusing solely on individual experiences, the method supports the exploration of shared challenges and jointly developed interpretations. This approach was particularly suitable for examining competence development as a social and relational practice embedded in SME leadership and governance.

Workshop findings show that competence shortages are experienced less as recruitment challenges and more as difficulties in assessing specific ability when needed. SMEs particularly reported challenges in finding substitutes and temporary replacements, especially in knowledge-intensive roles. Artificial intelligence (AI) was used as an administrative support tool in participating enterprises. Finding information has become easier by tutorials and Q/A-tools.

The workshops highlighted that future-oriented competence development stays limited in SMEs due to time constraints and resource scarcity. Strategic foresight is often informal and embedded in everyday decision-making rather than formal planning processes.

Discussions on future competence needs focused on topics such as multicultural workforces, sustainability and technological development. However, these themes were often perceived as distant from daily business operations. As a result, competence development is typically incremental rather than strategic.

Networks play a crucial role in addressing these challenges. SMEs often rely on external ability, peer collaboration and service-based solutions rather than permanent recruitment. Work-based learning approaches, such as internships, also offer opportunities to develop firm-specific capabilities. The reliance on

networks and external ability can be interpreted as a form of distributed capability-building, allowing SMEs to compensate for internal skill shortages while keeping flexibility. Such network-based models are particularly critical in resource-constrained environments.

The findings also emphasize the importance of networks in foresight processes. Entrepreneurs highlighted that not all development activities need to be conducted independently. By using networks, SMEs can focus on core competencies, strengthen resilience and distribute risk. The use of local business support services was relatively unfamiliar to SMEs. Their services were often for bigger enterprises. Networking with other enterprises was more popular.

The SMEs resource base appears to be a key determinant of the degree of systematicity in its development activities. In the smallest firms, innovation is often contingent upon the competencies, available time, and networks of the entrepreneur or a limited number of key individuals. In contrast, in larger firms, development efforts can be more readily organized, budgeted, and monitored. (Rantanen et al., 2026).

The key challenge, therefore, is not a lack of innovations, but rather their sustained development, adequate resourcing, and effective linkage to business growth. In an environment dominated by small firms, innovation tends to be confined to day-to-day problem-solving, despite its potential for broader strategic business impact. Skills shortages, limited resources, regulatory uncertainty, and the underutilization of collaborative structures further constrain firms' capacity for renewal. (Rantanen et al., 2026).

Workshop discussions revealed that customer knowledge in SMEs is often tacit and highly dependent on individuals. This limits the ability to systematically use customer insights in competence development. SMEs did not always recognize the importance of prioritizing sales and marketing activities as a critical factor in ensuring the profitability of business plans among. While a lack of customers was often identified as a key challenge, the corresponding plans for strengthening marketing efforts were often underdeveloped. Sales activities were generally insufficiently planned, and in cases showed strong seasonality. Furthermore, cost-efficient logistic, particularly as part of the supply chain, appeared as another crucial determinant of product profitability. Overall, the end-to-end sales process—from marketing to supply—appears to be a persistent and critical bottleneck.

The discussion on next-generation entrepreneurship highlighted the emergence of a new wave of multi-sector entrepreneurship. It was noted that entrepreneurs engaged in this form of entrepreneurship have been able to enhance their resilience and keep profitability during periods of economic uncertainty by operating across multiple sectors. Multi-sector entrepreneurship can also be interpreted as a form of strategic diversification, allowing SMEs to balance demand fluctuations and reduce dependency on single markets, thereby increasing resilience in uncertain environments.

Although entrepreneurship is often associated with autonomy and flexibility, it is simultaneously characterized by extended working hours and significant stress. This creates a well-documented paradox in which perceived control over one's work coexists with heightened vulnerability to overload and burnout. The workshop findings corroborate this perspective, highlighting that despite the theoretical flexibility of entrepreneurial work, in practice, entrepreneurs struggle to set boundaries for working time. The resulting accumulation of workload often leads to chronic strain and insufficient recovery. Furthermore, participants described a tendency to deprioritize personal well-being, often adopting an "on/off" working mode marked by intense work periods followed by inadequate rest. Over time, this imbalance may erode the intrinsic motivation that initially drives entrepreneurial activity, leading to a loss of meaning even in occupations that were previously experienced as passion driven.

The implications of diminished well-being extend beyond individual health and directly affect strategic and innovative capacities. Workshop discussions emphasized that reduced coping capacity undermines forward-looking thinking: when entrepreneurs are exhausted, their ability to engage in long-term planning and opportunity recognition is significantly weakened. This aligns with prior research suggesting that cognitive and emotional resources are essential for entrepreneurial decision-making and opportunity exploitation (Stephan, 2018). Innovation processes—requiring creativity, experimentation, and risk-taking—are sensitive to fluctuations in energy, motivation, and psychological resilience. Consequently, insufficient well-being can lead to a narrowing of strategic horizons and a reduced capacity to generate and implement novel ideas.

At the same time, the discussions found concrete practices that support entrepreneurial well-being, including regular physical activity, adequate sleep, and short restorative breaks during the working day. These findings reinforce existing literature emphasizing the role of recovery processes in sustaining high performance and

resilience in demanding work contexts. In addition to individual-level practices, the importance of social and organizational support structures was highlighted. Entrepreneurial networks were seen as essential mechanisms for ensuring continuity and mitigating risk in exceptional situations, such as illness. Practical arrangements, including shared digital access (e.g., cloud-based credentials), enable temporary redistribution of responsibilities and safeguard business operations. Overall, the findings are consistent with prior research proving a strong link between well-being and business performance, resilience, and long-term sustainability (Stephan, 2018; Hansson et al., 2022).

5. Discussion

The findings of this study highlight the interconnected nature of well-being, competencies, and market-facing capabilities in shaping innovation capacity within SMEs. Rather than being isolated challenges, these dimensions form a mutually reinforcing system in which constraints in one area can significantly amplify limitations in others. The results suggest that innovation barriers in SMEs are not solely decided by external factors such as funding or market conditions but are deeply embedded in organizational practices related to resource allocation, knowledge utilization, and human capacity.

Of the 15 participating entrepreneurs, the majority identified competence shortages as a more significant challenge than access to finance. Several participants reported difficulties in finding temporary substitutes and specialized expertise when needed. SMEs raised customer acquisition challenges were in nearly all workshop discussions, particularly among firms operating in local markets.

A central theme appearing from both the literature and workshop discussions is the critical role of entrepreneurial well-being. Consistent with prior research (Block et al., 2022; Stephan, 2018), the findings show that although entrepreneurship provides flexibility and autonomy, it is often associated with excessive workloads, blurred boundaries between work and personal life, and elevated stress levels. This paradox creates a situation in which entrepreneurs experience levels of control alongside heightened vulnerability. Workshop participants emphasized the difficulty of delimiting working hours, often leading to an accumulation of tasks and insufficient recovery time. Such conditions contribute to an “on/off” working pattern, characterized by cycles of overexertion and exhaustion, which can undermine long-term productivity and engagement.

Importantly, the implications of diminished well-being extend beyond individual health outcomes. The study shows that reduced coping capacity has direct consequences for strategic thinking, future orientation, and innovation activity. When entrepreneurs are overwhelmed, their ability to engage in opportunity recognition, long-term planning, and creative problem-solving is significantly constrained. This aligns with the broader literature highlighting the importance of cognitive and emotional resources for entrepreneurial performance (Hansson et al., 2022). Innovation requires sustained attention, experimentation, and risk-taking, all of which are compromised in conditions of chronic stress and fatigue. Consequently, well-being should be understood not merely as a personal or social issue but as a core part of innovation capacity.

In addition to well-being-related constraints, the study underscores the importance of competencies and skills development. From a governance perspective, the key issue is not only whether SMEs have sufficient competencies internally, but how they find, access, coordinate, and renew relevant ability over time.

Skill gaps were found to stem not only from recruitment challenges but also from difficulties in finding and assessing the right ability at the right time. This finding extends existing evidence suggesting that skills shortages in Europe are increasingly driven by structural factors such as technological change, demographic shifts, and the green transition (Bachmann et al., 2024). In SMEs, these challenges are intensified by the need for multi-skilled employees capable of performing diverse tasks across functions.

The results further suggest that competence-related challenges are linked to capability management rather than purely resource scarcity. While SMEs often recognize the importance of skills development, systematic approaches to competence mapping, knowledge sharing, and learning integration remain limited. This leads to an overreliance on tacit knowledge, which is often concentrated in individuals and not easily transferable within the organization. As highlighted in prior research (Appolloni et al., 2023; Saura et al., 2021), the transformation of implicit knowledge into structured and shareable forms is essential for scaling innovation and improving organizational learning. Without such mechanisms, SMEs risk losing critical knowledge and limiting their capacity to respond to changing environments.

The role of digitalization and artificial intelligence (AI) in addressing these challenges appears to be underdeveloped. Although SMEs reported increased use of AI tools, their application stays largely confined to administrative tasks rather than more advanced analytical or decision-support functions. This shows a gap between technological potential and actual use, suggesting that SMEs may lack the competencies or strategic direction needed to fully use digital solutions. Given that digital transformation increasingly underpins customer acquisition, segmentation, and market expansion (Petropoulou et al., 2024; Dyba and Di Maria, 2024), this underutilization is a missed opportunity for enhancing both operational efficiency and innovation.

Customer-related challenges further illustrate the systemic nature of the issues named. Despite recognizing the lack of customers as a key constraint, SMEs showed insufficient planning and prioritization of sales and marketing activities. This disconnects between problem recognition, and strategic action suggests limitations in business model development and capability alignment. Moreover, the reliance on tacit customer knowledge restricts the ability to systematically analyse customer needs and preferences, thereby weakening firms' market responsiveness. As a result, the entire sales process—from marketing to logistic—appears as a critical bottleneck affecting profitability and growth.

The emergence of multi-sector entrepreneurship provides an interesting counterpoint to these challenges. By running across multiple domains, entrepreneurs can diversify risk, balance demand fluctuations, and enhance resilience in uncertain environments. This form of entrepreneurship can be interpreted as a strategic response to resource constraints and market volatility, allowing firms to keep stability despite limited internal capabilities. However, it also requires added competencies and effective resource management, potentially increasing the complexity of operations.

Finally, the findings highlight the importance of networks and collaborative arrangements as mechanisms for addressing resource and competence limitations. SMEs often rely on external ability, partnerships, and peer networks to compensate for internal gaps, particularly in knowledge-intensive areas. Such network-based approaches can be seen as a form of distributed capability-building, enabling firms to keep flexibility while accessing specialized resources. These practices are especially valuable in situations of uncertainty or disruption, such as illness, where continuity can be ensured through shared responsibilities and digital access systems.

6. Conclusion

This study proves that competence development in micro- and small and medium-sized enterprises (SMEs) is linked to entrepreneurs' wellbeing, customer understanding, and access to external expertise. The findings suggest that competence development should not be viewed solely as formal training but rather as an integral managerial and governance practice through which firms find, get, share, and apply knowledge in their daily operations.

Entrepreneurs' wellbeing appeared as a key precondition for learning and innovation, while networks and partnerships enabled SMEs to compensate for their limited internal resources. Overall, the study highlights the need for practical and low-threshold support mechanisms that enable SMEs to integrate competence development into everyday business development activities and regional collaboration.

Ethics Declaration: Participation in the workshops was voluntary, and all collected data were anonymised. The study followed the principles of responsible research conduct. No sensitive personal data were collected.

AI Use Declaration: AI tools were used to support language editing and formatting. The author is fully responsible for the content, analysis and conclusions of the paper.

References

Appolloni, A., Basile, V., Caboni, F. and Pizzichini, L. (2023) 'An innovative approach to online consumer behaviour segmentation', *European Journal of Innovation Management*, 26(7), pp. 308–327.

Bachmann, R., Frattini, F.F., Hauret, L., Kirov, V., Lewandowski, P., Martin, L., Nguyen, U., Storm, E. and Zierahn-Weilage, U. (2024) *Skills gaps, skill shortages and mismatch: Existing evidence*. Brussels: European Union.

Block, J.H., Millán, J.M., Moritz, A. and Ramos-Poyatos, J.D. (2022) 'Working hours, working time flexibility and stress at work of entrepreneurs', *Review of Entrepreneurship*, 12(1), pp. 1–21.

Dörr, T., Schönhofer, M. and Schwarz, J. (2024) 'The state of foresight in small and medium-sized enterprises: Literature review and research agenda', *European Journal of Futures Research*, 12, pp. 1–15.

Dyba, W. and Di Maria, E. (2024) 'Assessment and support of the digitalization of businesses in Europe during and after the COVID-19 pandemic', *Regional Science Policy & Practice*. Available at: https://onlinelibrary.wiley.com/doi/pdf/10.1111/rsp3.12717

Erschens, R., Adam, S.H., Schröpel, C., Diebig, M., Rieger, M.A., Gündel, H., Zipfel, S. and Junne, F. (2024) 'Improving well-being and fostering health-oriented leadership among leaders in SMEs: A systematic review', *Healthcare*, 12(4), 486.

Gold, J. & Jones, O. (2023) *Finding innovation opportunities in SMEs through futures and foresight learning: an action learning approach*. Action Learning: Research and Practice. Available at: https://doi.org/10.1080/14767333.2023.221708

Hansson, J., Nordenmark, M., Tjulin, Å., Landstad, B.J. and Vinberg, S. (2022) 'Socio-ecological factors and well-being among self-employed in Europe during the COVID-19 pandemic', *International Journal of Environmental Research and Public Health*, 19, 7840.

Hines, A., Gary, J., Daheim, C. & van der Laan, L. (2017) *Building foresight capacity: Toward a foresight competency model*. World Futures Review, 9(3), pp. 123–141.

Kanzola, A.-M. & Petrakis, P.E. (2024) *A foresight framework for the labor market with special reference to managerial roles—Toward diversified skill portfolios*. Forecasting, 6(4), pp. 985–1000.

Petropoulou, A., Dimitriadis, S. and Kalafatis, S. (2024) 'Digital transformation and customer acquisition strategies in SMEs in the post-pandemic era', *Journal of Small Business Management*, pp. 1–20.

Rantanen, H., Palo-oja, E. and Ikävalko, J. (2026) Miten hyvät ideat saadaan liikkeelle? Mikro- ja pk-yritysten innovaatiotoiminnan pullonkaulat ja mahdollisuudet Etelä-Karjalassa. [*How to activate promising ideas? Barriers and opportunities in innovation practices of micro and SMEs in South Karelia, Finland*.] Lappeenranta. LAB University of Applied Sciences.

Saura, J.R., Ribeiro-Soriano, D. and Palacios-Marqués, D. (2021) 'Setting B2B digital marketing in artificial intelligence-based CRMs: A review and directions for future research', *Industrial Marketing Management*, 98, pp. 161–178.

Soomro, R.B., Memon, S.G. and Soomro, M. (2025) 'Impact of entrepreneurial knowledge, skills, and competencies on MSME performance', *Asia Pacific Journal of Innovation and Entrepreneurship*, 19(1), pp. 42–72.

Stephan, U. (2018) 'Entrepreneurs' mental health and well-being: A review and research agenda', *Academy of Management Perspectives*, 32(3), pp. 290–322.

Taipale-Erävala, K., Muhos, M. and Ala-Rämi, K. (2021) 'Competence development needs for micro-enterprises entering servitisation', *International Journal of Value Chain Management*, 12(1), pp. 86–105.

Wallo, A. and Coetzer, A. (2026) 'Learning-oriented leadership in SMEs in volatile and disruptive environments', *European Journal of Training and Development*, advance online publication.

Employee Engagement as a Digital Twin Innovation Driver: Conceptual Framework

Lucília Ribeiro, Ana Vieira Martins and Elisabete Nogueira
Research on Economics, Management and Information Technologies (REMIT), Portucalense University, Porto, Portugal

ribeiro.lucilia@gmail.com (Corresponding author)
martinsvaana@gmail.com
enogueira@upt.pt

Abstract: Organisations across sectors face intensifying pressure to innovate as digital transformation reshapes operations, structures and decision-making. Digital twin technologies have become critical strategic tools, enabling simulation, real-time monitoring and process optimisation. Yet most implementations remain techno-centric, prioritising system architectures over the human dimensions essential for transformative impact. This study develops an integrated conceptual framework placing employee engagement and knowledge processes at the core of digital twin-enabled innovation, bridging three previously disconnected research streams. Using a integrative review of peer reviewed literature on employee engagement and innovation, digital transformation/ change management and digital twin adoption (2020–2026), comparative thematic analysis mapped conceptual convergences and revealed key theoretical gaps, particularly how human factors translate digital twin capabilities into organisational innovation. The resulting framework posits employee engagement as the primary mediating mechanism through which digital twin-driven change produces multilevel innovation outcomes. Knowledge sharing acts as a secondary mediator, converting individual experimentation into collective organisational learning, while leadership support, learning culture and change readiness serve as contextual moderators. Digital twin initiatives demand real-time data interpretation and cross-functional collaboration, challenges engaged employees meet through vigour, dedication and proactive problem-solving. The model defines a sequential pathway in which digital twin-enabled change enhances engagement, which stimulates knowledge sharing and generates individual innovative behaviours, team problem-solving and organisational process and service innovation, sustained by dynamic feedback loops from successful outcomes. This framework makes three original contributions: (1) integration of organisational behaviour, innovation management and information systems through mechanisms linking engagement, knowledge sharing and innovation; (2) new micro-foundational insights connecting human behavioural dynamics with Industry 5.0 digital twin technologies; and (3) actionable guidance for managers to design digital twin programmes as integrated socio-technical change initiatives fostering engagement and institutionalised knowledge sharing. The study outlines priorities for multilevel, longitudinal and cross-sector empirical research to test these propositions and advance human-centric digital twin innovation.

Keywords: Employee engagement, Digital twin, Innovation, Knowledge sharing, Change management, Industry 5.0

1. Introduction

Organisations across sectors face competitive, technological and societal pressures to innovate continuously using rich digital data (Bieńkowska et al., 2025; Chrusciaka et al., 2025). Digital transformation is a strategic imperative that represents significant organisational change, reshaping structures, processes, roles and cultures beyond mere technological upgrades (Marzi et al., 2023; Bieńkowska et al., 2025). Digital twins are virtual replicas of physical assets, processes or systems, synchronised with real world data, which enable data-driven simulation, monitoring and optimisation, supporting predictive maintenance, scenario simulation, process optimisation, service innovation and organisational-level strategy testing (Emmert-Streib, 2023; Krupas et al., 2024; Lyytinen et al., 2024; Rahmani et al., 2024; Yao et al., 2023).

As digital twin initiatives grow, Industry 5.0 and human-centric transformation focus on socio-technical systems. These highlight human-machine collaboration, sustainability, resilience and worker well-being (Martini, Bellisario and Coletti, 2024; Khule et al., 2026). Digital twins reshape routines, skills and collaboration as employees use dashboards, models and real-time data. Thus, a socio-organisational lens is essential (Krupas et al., 2024; Rahmani, Jesus and Lopes, 2024). Viewing digital twins only as technical artefacts overlooks the behavioural conditions needed for innovation (Bieńkowska et al., 2025; Chrusciaka et al., 2025; Krupas et al., 2024; Martini et al., 2024).

Employee engagement is a positive state of energy and dedication. It drives innovative work behaviour, idea generation and service innovation by building creative self-belief and encouraging problem-solving. Digital twins require employees to adapt to data-driven routines, work across functions and keep learning. Engagement plays a key role in the adoption and using digital twins for innovation.

Yet the literature remains fragmented. Engagement-innovation studies focus on generic settings, with little attention to digital twins (Ali, Li and Qiu, 2022; Ghani et al., 2023; Elamin et al., 2024; Wang et al., 2024). Digital twin research prioritises technical aspects, sidelining human factors (Marzi et al., 2023; Yao et al., 2023; Rahmani, Jesus and Lopes, 2024). Change management rarely integrates engagement and knowledge sharing as mechanisms translating technology into innovation (Chrusciaka et al., 2025; Marzi et al., 2023).

Empirical evidence links engagement to innovation, creativity, knowledge sharing and open service innovation (Ali, Li and Qiu, 2022; Ghani et al., 2023; Elamin et al., 2024; Wang et al., 2024). Digital transformation studies stress leadership, culture, readiness and communication for human-centric success (Kehrbusch and Engels, 2023; Marzi et al., 2023; Bieńkowska et al., 2025; Chrusciaka et al., 2025). Digital twin research highlights technical integration and operations, with a still under-integrated human-machine focus (Yao et al., 2023; Krupas et al., 2024; Martini, Bellisario and Coletti, 2024; Rahmani, Jesus and Lopes, 2024; Bieńkowska et al., 2025). No framework theorises engagement via knowledge sharing, links digital twin change to innovation and moderates it through leadership, culture and readiness.

This paper asks: How do employee engagement and knowledge sharing drive innovation during digital twin-enabled change? The authors aim to: (1) Review the literature on engagement, innovation, digital transformation and digital twins to find research gaps; (2) Develop a framework showing engagement and knowledge sharing as key links between change and innovation; (3) Suggest future research on multiple levels, over time and across sectors.

This work introduces a framework that shifts from a techno-centric to a human-centric perspective. It centres engagement and knowledge in digital twin innovation through mediating and moderating mechanisms (Krupas et al., 2024; Martini, Bellisario and Coletti, 2024; Bieńkowska et al., 2025; Chrusciaka et al., 2025). It also provides micro-foundations for scholars (Ali, Li and Qiu, 2022; Elamin et al., 2024; Krupas et al., 2024)and actionable guidance for managers on human-centric governance (Kehrbusch and Engels, 2023; Bieńkowska et al., 2025).

2. Literature Review

2.1 Employee Engagement and Innovation

Employee engagement is a positive work-related state of vigour, dedication and absorption. It reflects the psychological presence and energy invested in work roles (Schaufeli, 2017; Ali, Li and Qiu, 2022). This state includes cognitive focus on tasks, emotional commitment to goals and proactive behaviour beyond formal requirements (Ghani et al., 2023; Elamin et al., 2024; Wang et al., 2024). Engagement thus mobilises cognitive, emotional and behavioural energy for problem-solving, collaboration and innovation at work.

Research links employee engagement to innovative work behaviour, creativity and innovation outcomes. Engaged employees are more likely to generate, promote and implement novel ideas, even when obstacles arise (Zhang and Bartol, 2010; Ali, Li and Qiu, 2022; Ghani et al., 2023; Wang et al., 2024). In services, engagement drives open innovation through creative self-efficacy and innovative work behaviour-mediated processes (Wan et al., 2022). Other mechanisms (learning orientation, thriving at work and psychological safety) enable experimentation, risk-taking and new approaches to work (Ghani et al., 2023; Elamin et al., 2024; Gao, Chen and Jiang, 2025).

Knowledge processes are central to this nexus. Engagement positively associates with knowledge-sharing behaviours, including the exchange of expertise, ideas and experiential insights (Bailey et al., 2017; Ali, Li and Qiu, 2022; Wang et al., 2024). Energetic, committed employees share explicit and tacit knowledge, facilitating individual creativity, team-level innovation and organisational learning (Wan et al., 2022; Wang et al., 2024). Visionary/empowering leadership effects on innovative work behaviour operate through knowledge sharing and creativity, positioning engagement and knowledge processes as joint innovation pathways (Alobeidli, Ahmad and Jabeen, 2024).

2.2 The Missing Crossover

The reviewed literature reveals a significant underexplored intersection. Digital twin projects reshape work routines through data-intensive tasks, dashboard use and simulation-based decision-making; alter competencies such as data literacy, systems thinking and cross-functional coordination; and reconfigure collaboration as employees interpret/act on shared digital model (Krupas et al., 2024; Rahmani, Jesus and Lopes, 2024). Success depends not only on technical robustness but also on employees' willingness to learn, experiment and integrate digital twin insights into practice.

Digital twin-enabled innovation proves fundamentally human-dependent. Technological potential requires activation through employee engagement, collaborative behaviours and knowledge processes (Martini, Bellisario and Coletti, 2024; Bieńkowska et al., 2025; Chrusciaka et al., 2025). Engagement channels adoption into proactive participation, idea generation and problem-solving persistence amid simulation complexity/ uncertainty (Ali, Li and Qiu, 2022; Wang et al., 2024).

Knowledge sharing mediates as a key process: engaged employees share explicit knowledge (dashboard use, indicator interpretation) and tacit knowledge (process nuances, workarounds), transforming individual experimentation into collective learning, cross-functional problem-solving and new digital twin-enabled services/ business models (Bailey et al., 2017; Wan et al., 2022; Wang et al., 2024).

This pathway's strength depends on contextual moderators: innovation-supportive/ learning-oriented leadership encourages engagement and legitimises experimentation with resource allocation (Elamin et al., 2024; Gao, Chen and Jiang, 2025; Okanlawon et al., 2025); learning culture/ psychological safety enables new digital twin uses, model/ data error surfacing and open failure discussion (Martini, Bellisario and Coletti, 2024; Bieńkowska et al., 2025);change readiness/ digital mindset determines constructive involvement versus anxiety/withdrawal (Marzi et al., 2023).

No existing framework explicitly integrates employee engagement (core mechanism), knowledge sharing (mediator) and contextual moderators (leadership/ culture/ readiness) to explain digital twin-enabled innovation outcomes. Current research examines engagement/ innovative work behaviour generically, digital transformation without specificity to digital twins, or digital twins through technical lenses that lack human mechanisms.

3. Methodology

3.1 Methodological Approach and Review Design

The authors adopted a conceptual paper design grounded in an integrative literature review to develop a human-centric framework linking employee engagement, knowledge sharing and innovation in digital twin-enabled organisational change (Torraco, 2005, 2016; Snyder, 2019). This approach proved appropriate given the heterogeneous, multi-disciplinary nature of the relevant literatures, employee engagement/ innovative work behaviour, change management in digital transformation and digital twin research, at varying maturity levels, where narrow effect-size aggregation was neither feasible nor desirable (Snyder, 2019). Rather than testing predefined hypotheses, this approach used existing work to build new conceptual linkages and a provisional theoretical model, consistent with integrative reviews in emerging domains (Torraco, 2016).

The review pursued three interrelated goals aligned with the article's structure. First, the authors consolidated core constructs across fields, clarifying definitions and operationalisations of employee engagement, innovative work behaviour, knowledge sharing, digital transformation and digital twin-enabled change (Ali, Li and Qiu, 2022; Marzi et al., 2023; Krupas et al., 2024; Rahmani, Jesus and Lopes, 2024). Second, the authors identified and aligned conceptual relationships across the engagement-innovation, digital transformation/ change and digital twin literatures, emphasising mediating knowledge processes and contextual factors such as leadership, culture and readiness (Martini, Bellisario and Coletti, 2024; Chrusciaka et al., 2025). Third, the authors used this synthesis to identify gaps and articulate a future research agenda to guide multilevel, longitudinal and cross-sector empirical work on digital twin-enabled innovation (Snyder, 2019). The article's structure around these aims maintained clear alignment between the research problem, the review process and the proposed framework, per best-practice integrative review guidance (Torraco, 2005, 2016).

3.2 Search Strategy

The authors searched Scopus and Web of Science for peer-reviewed journal articles, complemented by select high-quality reports and standards for definitional clarity on digital twins and digital transformation (Emmert-Streib, 2023; Yao et al., 2023; Rahmani, Jesus and Lopes, 2024). The timeframe (approx. 2020-2026) captured the maturation of engagement-innovation research alongside accelerating digital transformation/ digital twin developments (Ali, Li and Qiu, 2022; Marzi et al., 2023; Krupas et al., 2024).

Search terms combined (a) engagement/ innovation keywords such as, "employee engagement," "work engagement," "innovative work behaviour," "employee creativity," "knowledge sharing", with (b) digital transformation/ digital twin terms: "digital transformation", "organisational change", "change management", "digital twin", "digital twin of an organization", "human-centric digital transformation" (Marzi et al., 2023;

Barata and Kayser, 2024; Rahmani, Jesus and Lopes, 2024). Backwards/ forward citation tracking on key reviews identified additional studies (Torraco, 2016; Snyder, 2019).

Inclusion criteria required: (1) peer-reviewed status; (2) placement in management, organisational behaviour/ human resource management, innovation, information systems, operations, or related fields; (3) addressing focal constructs, employee engagement, innovative work behaviour/creativity, knowledge sharing, digital transformation/ change, digital twin technologies, with explicit organisational/ human implications (Ali, Li and Qiu, 2022; Marzi et al., 2023). Both conceptual and empirical studies were included, as integrative reviews benefit from combined theoretical/ empirical insights for framework development. Exclusions comprised highly technical digital twin papers focused solely on architectures/ algorithms/ engineering without organisational/ human dimensions, plus non-peer-reviewed opinion pieces (except practitioner reports contextualising digital twin definitions/ applications) (Yao et al., 2023; Rahmani, Jesus and Lopes, 2024). After removing duplicates and clearly irrelevant records, 23 studies met the inclusion criteria for in-depth analysis. Among these, 9 focused on theories of employee engagement and innovative work behaviour. Four studies examined digital transformation and human-centric change management. The remaining 10 studies addressed digital twins and Industry 5.0, including topics like human–machine collaboration and human digital twins (Ali, Li and Qiu, 2022; Marzi et al., 2023; Krupas et al., 2024; Martini, Bellisario and Coletti, 2024; Rahmani, Jesus and Lopes, 2024; Wang et al., 2024; Bieńkowska et al., 2025; Chrusciaka et al., 2025; Okanlawon et al., 2025). All of these studies appeared in peer-reviewed journals indexed in Scopus or Web of Science. They span management, organisational behaviour, human resource management, innovation, information systems, and operations.

The analysis used a structured, iterative process, following integrative review guidelines (Torraco, 2005, 2016; Snyder, 2019). First, titles and abstracts were screened to exclude irrelevant records. Then, full texts were read to ensure each study's concepts and scope matched the research aims. During in-depth analysis, authors documented definitions, theoretical lenses, key variables, and main findings using an extraction template. This approach enabled systematic comparisons across studies and literature streams (Ali, Li and Qiu, 2022; Marzi et al., 2023; Krupas et al., 2024).

To go beyond a descriptive review, studies were mapped along four dimensions: main focus (engagement and innovation; digital transformation and change management; digital twins), level of analysis (individual, team, or organisational), knowledge processes (knowledge sharing, learning, and related topics), and contextual factors (such as leadership, culture, change readiness, and human-centric design or human factors) (Martini, Bellisario and Coletti, 2024; Wang et al., 2024; Chrusciaka et al., 2025) mapping revealed patterns. Most studies on engagement and innovative work behaviour operated at the individual level, treating leadership or culture as contextual enablers (Zhang and Bartol, 2010; Bailey et al., 2017; Ghani et al., 2023; Elamin et al., 2024). Some engagement and digital transformation studies specifically discussed knowledge sharing and learning as mediators (Ali, Li and Qiu, 2022; Wan et al., 2022; Gao, Chen and Jiang, 2025). In comparison, digital twin and Industry 5.0 studies, despite deep technical and system-level insights, usually did not include individual-level engagement or knowledge processes. They typically defined context in terms of readiness, governance, and ergonomics (Emmert-Streib, 2023; Yao et al., 2023; Krupas et al., 2024; Rahmani, Jesus and Lopes, 2024; Bieńkowska et al., 2025).

Building on this mapping, the review compared antecedents, mediators, and outcomes across three research areas, identifying common themes, tensions, and gaps (Snyder, 2019). The review contrasted organisational behaviour and human resource management models, where engagement and knowledge sharing mediate leadership's influence on innovative work behaviour (Ali, Li and Qiu, 2022; Ghani et al., 2023; Elamin et al., 2024), with digital transformation studies that treat leadership, culture, and readiness as enablers of adoption and change (Kehrbusch and Engels, 2023; Bieńkowska et al., 2025; Chrusciaka et al., 2025). It also compared these to digital twin studies, which focus mostly on technical context (Marzi et al., 2023; Rahmani, Jesus and Lopes, 2024). Through iterative reading, coding, and diagramming, these patterns were synthesised into the integrative framework and propositions described in the next section. The framework explains how employee engagement, knowledge sharing, and contextual moderators interact to shape digital twin-enabled innovation and suggests future research directions, including empirical designs, levels of analysis, and sectoral contexts for testing and extending the model (Snyder, 2019).

4. Results and Discussion

4.1 Integrative Analysis and Conceptual Framework

Digital twin-enabled organisational change is not merely a technological upgrade but a socio technical transition that reshapes how employees interpret information, coordinate action and contribute to innovation. As organisations embed digital twins into processes and systems, employees engage with real time data and simulation environments, and translate virtual insights into decisions (Yao et al., 2023; Krupas et al., 2024; Rahmani, Jesus and Lopes, 2024) Given the informational intensity, interdependence and uncertainty of these environments, technological capability alone is insufficient; sustained innovation depends on employees adopting new routines, experimenting with unfamiliar problem solving and collaborating across boundaries (Martini, Bellisario and Coletti, 2024; Bieńkowska et al., 2025; Chrusciaka et al., 2025).

Employee engagement is therefore central. Engaged employees display vigour, dedication, absorption, initiative and persistence, which support innovative work behaviour and creativity (Ali, Li and Qiu, 2022; Ghani et al., 2023; Wang et al., 2024). In digital twin contexts, these qualities enable employees to interpret dashboards, question simulations, identify anomalies and translate digital signals into improvements. Engagement thus functions as a behavioural mechanism that links digital twin-enabled change to innovation, particularly in ambiguous and complex contexts.

Engagement is reinforced by knowledge sharing. Research shows that engaged employees are more likely to exchange ideas and experiential know how, transforming individual contributions into collective learning (Bailey et al., 2017; Ali, Li and Qiu, 2022; Wan et al., 2022; Elamin et al., 2024; Gao, Chen and Jiang, 2025). In digital twin environments, knowledge sharing enables employees to interpret and embed the technology into workflows, turning isolated experimentation into team-driven problem solving and broader innovation.

These mechanisms are shaped by organisational context. Leadership, culture, communication and readiness influence whether digital change is perceived as an opportunity or threat (Kehrbusch and Engels, 2023; Marzi et al., 2023; Bieńkowska et al., 2025; Chrusciaka et al., 2025). Human centric Industry 5.0 and digital twin research further emphasise well being, collaborative design and organisational support as conditions for (Krupas et al., 2024; Martini, Bellisario and Coletti, 2024; Okanlawon et al., 2025). However, these factors are rarely explicitly connected to engagement and knowledge sharing mechanisms, despite shaping whether engagement is activated, knowledge circulates, and innovation emerges.

The framework developed in this study positions digital twin-enabled organisational change as the triggering condition, employee engagement as the primary behavioural mechanism, knowledge sharing as a mediating process and leadership, culture and readiness as contextual moderators. It integrates three literature streams, engagement and innovative work behaviour, digital transformation and change management, and digital twin and Industry 5.0, explaining how digital twin initiatives can move beyond technical optimisation to enable innovation through human participation and shared learning. Figure 1 summarises this framework.

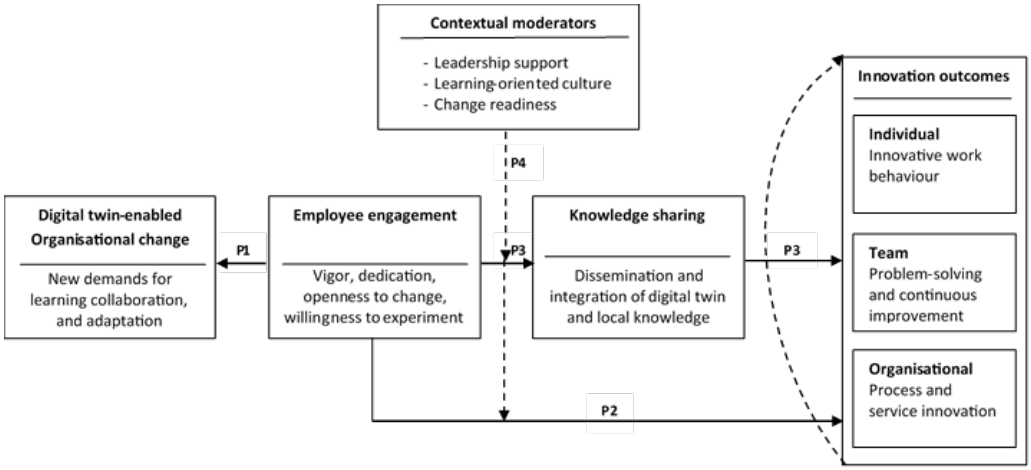


Figure 1: Conceptual framework of employee engagement, knowledge sharing and innovation in digital twin-enabled organisational change

4.2 Theoretical Implications

The framework offers three theoretical contributions. First, it integrates fragmented literatures by connecting organisational behaviour/ human resource management engagement/ innovative work behaviour research with innovation management/digital transformation/ digital twin studies (Marzi et al., 2023; Krupas et al., 2024; Rahmani, Jesus and Lopes, 2024). This embeds engagement-innovation models within data-intensive, simulation-based digital twin-enabled change. Second, it humanises digital twin research by integrating microfoundational mechanisms, namely engagement and knowledge sharing, amid technical/operational dominance (Krupas et al., 2024; Rahmani, Jesus and Lopes, 2024). Third, it refines engagement theory, positioning it as pivotal in high-uncertainty/technology-mediated change, with specified knowledge processes and contextual contingencies (leadership/ culture/ readiness) (Martini, Bellisario and Coletti, 2024; Bieńkowska et al., 2025; Chrusciaka et al., 2025).

4.3 Practical Implications

Digital twin initiatives should be managed as organisation wide change programmes, not just narrow IT projects. Innovative value depends on employees' understanding of the purpose, their engagement with new routines, and their perception of change as meaningful. Managers should design implementations to foster engagement, rather than assume it will emerge spontaneously. Leadership support must be visible and participative, with clear communication on why the digital twin is introduced, the expected benefits, and the desired experimentation. Avoid using surveillance oriented framing, as it can trigger resistance (Kehrbusch and Engels, 2023; Marzi et al., 2023; Bieńkowska et al., 2025; Chrusciaka et al., 2025). Organisations should also cultivate learning cultures and readiness through knowledge sharing routines and targeted data literacy training. Experimentation with dashboards, simulations and anomaly detection in digital twin environments should be supported by HRM practices that reinforce proactive problem solving and knowledge exchange (Ghani et al., 2023; Barata and Kayser, 2024; Krupas et al., 2024; Wang et al., 2024).

5. Conclusion

This study examined how employee engagement and knowledge sharing drive innovation during digital twin-enabled organisational change, based on an integrative review of recent work on engagement and innovative work behaviour, digital transformation and digital twins. The analysis shows that digital twin initiatives create data intensive, uncertain work contexts in which technological sophistication alone is insufficient; innovation depends on employees' willingness to engage, experiment and share knowledge across functions. In direct answer to the research question, the proposed framework explains how digital twin-enabled change enhances engagement, how engagement stimulates knowledge sharing and how these mechanisms, conditioned by leadership support, learning culture and change readiness, generate innovation at individual, team and organisational levels. The study advances a human centric understanding of digital twins and outlines an agenda for future empirical research, encouraging scholars and practitioners to treat engagement and knowledge processes as core design variables in digital twin programmes.

Like all conceptual, review-based work, this study has limitations that warrant acknowledgement. First, the proposed framework remains theoretically grounded but empirically untested and therefore requires validation. Second, reliance on predominantly English-language, indexed sources may have introduced selection bias, underrepresenting insights from non-indexed or non-English work. Third, digital twin technologies evolve rapidly and vary across sectors, so the relationships advanced here may depend on specific architectures, regulatory environments and organisational contexts, limiting generalisability over time and across settings.

Future research should prioritise empirical tests of the framework in diverse digital twin-enabled contexts, using quantitative studies in manufacturing, services and public administration to examine how engagement, knowledge sharing and contextual moderators jointly shape innovation outcomes. Multilevel and longitudinal designs are particularly valuable to link individual engagement and knowledge sharing to team learning and organisational innovation across implementation phases. Qualitative case studies, mixed methods designs, and action research can deepen understanding of how leadership, culture and readiness are enacted in practice and how engagement and knowledge processes are designed, experienced and adjusted in digital twin programmes.

Ethics Declaration: Not Applicable.

AI Declaration: AI tools were used to support the orthographic and grammatical revision in academic English writing.

Consent for Publication: Not Applicable.

Availability of Data and Material: Not Applicable.

Competing Interests: The authors declare that they have no competing interests.

Funding: This work is funded by national funds through FCT - Fundação para a Ciência e a Tecnologia, I.P., under the Programme Contract UID/05105/2025. https://doi.org/10.54499/UID/05105/2025.

References

Ali, H., Li, M., & Qiu, X. (2022). Employee engagement and innovative work behavior among Chinese millennials: Mediating and moderating role of work-life balance and psychological empowerment. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.942580

Alobeidli, S. Y., Ahmad, S. Z., & Jabeen, F. (2024). Mediating effects of knowledge sharing and employee creativity on the relationship between visionary leadership and innovative work behavior. Management Research Review, 47(6), 883–903. https://doi.org/10.1108/MRR-02-2023-0144

Bailey, C., Madden, A., Alfes, K., & Fletcher, L. (2017). The meaning, antecedents and outcomes of employee engagement: A narrative synthesis. International Journal of Management Reviews, 19(1), 31–53. https://doi.org/10.1111/ijmr.12077

Barata, J., & Kayser, I. (2024). How will the digital twin shape the future of Industry 5.0? Technovation, 134. https://doi.org/10.1016/j.technovation.2024.103025

Bieńkowska, A., Tworek, K., Voropai, O., & Zimmer, J. (2025). Human-centric approach to creating sustainable innovation in the context of Industry 5.0. Entrepreneurial Business and Economics Review, 13(3), 115–134. https://doi.org/10.15678/EBER.2025.130306

Chrusciaka, C. B., Szejkaa, A. L., Juniora, O. C., & Schaefera, J. L. (2025). Human-centric process improvement through digital transformation: Contributions and limitations. Production, 35. https://doi.org/10.1590/0103-6513.20240109

Elamin, A. M., Aldabbas, H., Ahmed, A. Z. E., & Abdullah, A. N. (2024). Employee engagement and innovative work behavior: The mediating role of knowledge-sharing behavior in the United Arab Emirates (UAE) service context. Administrative Sciences, 14(9). https://doi.org/10.3390/admsci14090232

Emmert-Streib, F. (2023). Defining a digital twin: A data science-based unification. Machine Learning and Knowledge Extraction, 5(3), 1036–1054. https://doi.org/10.3390/make5030054

Gao, S., Chen, J., & Jiang, P. (2025). How does digital knowledge management drive employees' innovative behavior? Sustainability, 17(17). https://doi.org/10.3390/su17177823

Ghani, B., Hyder, S. I., Yoo, S., & Han, H. (2023). Does employee engagement promote innovation? The facilitators of innovative workplace behavior via mediation and moderation. Heliyon, 9(11). https://doi.org/10.1016/j.heliyon.2023.e21817

Kehrbusch, B., & Engels, G. (2023). Digital transformation—Towards flexible human-centric enterprises. In Digital Transformation (pp. 497–526). Springer. https://doi.org/10.1007/978-3-662-65004-2_20

Khule, S., Sihare, M., Arora, R., Dixit, N., Dubey, G., & Sharma, Y. K. (2026). Human-machine collaboration in industry 5.0 using big data analytics. In Transforming Industries, Empowering Societies (pp. 15–26). https://doi.org/10.1016/B978-0-443-32878-7.00019-5

Krupas, M., Kajati, E., Liu, C., & Zolotova, I. (2024). Towards a human-centric digital twin for human–machine collaboration: A review on enabling technologies and methods. Sensors, 24(7). https://doi.org/10.3390/s24072232

Lyytinen, K., Weber, B., Becker, M. C., & Pentland, B. T. (2024). Digital twins of organization: Implications for organization design. Journal of Organization Design, 13(3), 77–93. https://doi.org/10.1007/s41469-023-00151-z

Martini, B., Bellisario, D., & Coletti, P. (2024). Human-centered and sustainable artificial intelligence in Industry 5.0: Challenges and perspectives. Sustainability, 16(13). https://doi.org/10.3390/su16135448

Marzi, G., Fakhar Manesh, M., Caputo, A., Pellegrini, M. M., & Vlačić, B. (2023). Do or do not. Cognitive configurations affecting open innovation adoption in SMEs. Technovation, 119. https://doi.org/10.1016/j.technovation.2022.102585

Okanlawon, T. T., Oyewobi, L. O., Kabir, I., Badamasi, A., Dodo, M., & Jimoh, R. A. (2025). Enhancing the integration of digital twin in construction phases: Key drivers for adoption in Nigeria. Journal of Engineering, Design and Technology. Advance online publication. https://doi.org/10.1108/JEDT-03-2025-0120

Rahmani, R., Jesus, C., & Lopes, S. I. (2024). Implementations of digital transformation and digital twins: Exploring the factory of the future. Processes, 12(4). https://doi.org/10.3390/pr12040787

Schaufeli, W. B. (2017). Applying the Job Demands-Resources model: A "how to" guide to measuring and tackling work engagement and burnout. Organizational Dynamics, 46(2), 120–132. https://doi.org/10.1016/j.orgdyn.2017.04.008

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. Journal of Business Research, 104, 333–339. https://doi.org/10.1016/j.jbusres.2019.07.039

Torraco, R. J. (2005). Writing integrative literature reviews: Guidelines and examples. Human Resource Development Review, 4(3), 356–367. https://doi.org/10.1177/1534484305278283

Torraco, R. J. (2016). Writing integrative literature reviews: Using the past and present to explore the future. Human Resource Development Review, 15(4), 404–428. https://doi.org/10.1177/1534484316671606

Wan, X., He, R., Zhang, G., & Zhou, J. (2022). Employee engagement and open service innovation: The roles of creative self-efficacy and employee innovative behaviour. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.921687

Wang, B., Zhou, H., Li, X., Yang, G., Zheng, P., Song, C., Yuan, Y., Wuest, T., Yang, H., & Wang, L. (2024). Human digital twin in the context of Industry 5.0. Robotics and Computer-Integrated Manufacturing, 85. https://doi.org/10.1016/j.rcim.2023.102626

Yao, J. F., Yang, Y., Wang, X. C., & Zhang, X. P. (2023). Systematic review of digital twin technology and applications. Visual Computing for Industry, Biomedicine, and Art, 6(1). https://doi.org/10.1186/s42492-023-00137-4

Zhang, X., & Bartol, K. M. (2010). Linking empowering leadership and employee creativity: The influence of psychological empowerment, intrinsic motivation, and creative process engagement. Academy of Management Journal, 53(1), 107–128. https://doi.org/10.5465/amj.2010.48037118

The Organization of Wrongdoing: The Strategic Role of Leadership

Sara Rocchi
Department of Sociology and Social Research, University of Milano-Bicocca, Milan, Italy

sara.rocchi@unimib.it

Abstract: Research on organizational wrongdoing has largely explained the persistence of illegal or unethical practices through processes of normalization, whereby wrongdoing gradually becomes accepted as routine and legitimate within organizations. While this perspective has generated important insights, it pays less attention to the role of leadership in sustaining wrongdoing when organizational members continue to recognize its illegal or unethical nature. Drawing on the literature on organizational silence, this article argues that wrongdoing may persist not only because it is normalized, but also because leaders actively suppress dissent. The article develops this argument through the analysis of two case studies: the Theranos fraud and the Australian high-performance swimming scandal. Drawing on data collected from multiple sources, the analysis identifies two complementary types of leadership strategies for creating and sustaining organizational silence. First, leaders directly discourage voice by exerting pressure on individuals either through intimidation, degradation and retaliation or rationalization. Second, they indirectly maintain silence by designing organizational structures and processes that fragment information, restrict communication, and weaken monitoring systems. By integrating insights from the literature on organizational wrongdoing and organizational silence, the article contributes to research on the persistence of wrongdoing by showing that its continuation depends not only on processes of normalization but also on leaders' strategic efforts to suppress voice, suggesting that organizational silence should be understood as a mechanism that is conceptually distinct from, yet complementary to, the normalization of wrongdoing.

Keywords: Wrongdoing, Misconduct, Organisational analysis, Employee silence, Leadership

1. Introduction

Organizational wrongdoing refers to violations of laws (criminal, civil, or administrative) or sectoral and professional codes of conduct that are committed by members of an organization for its benefit (Palmer, Smith–Crowe and Greenwood, 2016). According to one strand of the literature, wrongdoing is a relatively rare phenomenon attributable to individuals with deviant moral dispositions or psychological traits. However, when wrongdoing persists over time and involves multiple members of an organization, explanations based solely on individual predispositions appear insufficient, suggesting that there are organizational factors that play a crucial role in sustaining such behaviour. Following Palmer (2012), we conceptualize wrongdoing as a "normal" feature of organizational life that emerges from the interaction among members' actions, latent organizational vulnerabilities, and environmental conditions (Greve, Palmer and Pozner, 2010; Palmer, Smith–Crowe and Greenwood, 2016; Gabbioneta, Clemente and Greenwood, 2023).

According to the wrongdoing-as-normal phenomenon perspective, the persistence of wrongdoing in organizations is rooted in processes through which deviant practices become taken for granted (Ashforth and Anand, 2003; Fleming et al., 2022; Entwistle and Doering, 2024). Ashforth and Anand (2003), for example, identified three mechanisms through which corruption becomes normalized within organizations: institutionalization, rationalization, and socialization. Together, these mechanisms transform corrupt practices into routines, provide cognitive justifications for their continuation, and present them to new members as acceptable behaviour. More recently, Fleming et al. (2022) highlighted that the tolerance of wrongdoing can also be normalized, leading non-corrupt bystanders to regard corruption as acceptable.

According to this perspective, once initiated by top management, wrongdoing tends to become self-reinforcing and self-perpetuating within the organization, as even individuals who would ordinarily be considered morally upright come to engage routinely in deviant practices without experiencing any sense of ethical dissonance (Ashforth and Anand, 2003). This occurs because wrongdoing is normalized, meaning that individuals become so accustomed to deviant practices that they no longer perceive them as improper or unethical, even when such practices would clearly be recognized as wrongdoing by an external observer (Vaughan, 1996).

However, the processes through which wrongdoing becomes entrenched and persists within organizations may be more fragile and contested than this literature suggests. Research on whistleblowing has shown that the normalization of wrongdoing does not encompass all organizational members. Rather, some individuals remain aware of the illegal or unethical nature of certain practices and are willing to report them, either through internal channels (internal whistleblowing) or to regulatory and law enforcement authorities (external whistleblowing) (Culiberg and Mihelič, 2017). Nevertheless, data also show that, in Europe, 80% of those who are aware of corrupt practices are reluctant to report them because of fear of retaliation (European

Commission, 2025). This evidence suggests that the persistence of wrongdoing cannot be explained solely by processes of normalization because some organizational members continue to recognize the illegality or unethical nature of certain practices. The fact that many individuals nevertheless refrain from reporting wrongdoing because they fear retaliation points to an active role of top management in sustaining wrongdoing by creating and maintaining organizational silence. In this article, these leadership efforts are conceptualized as strategic behaviour, namely a coherent pattern of actions (Mintzberg, 1987).

While the literature on organizational wrongdoing has, with some exceptions (e.g. Rocchi, 2025), tended to overlook the strategic role of leadership in sustaining wrongdoing over time, the literature on organizational and employee silence has devoted considerable attention to how leaders shape workplace conditions to discourage voice (Morrison, 2023). Building on these insights, the article contributes to the literature on organizational wrongdoing, particularly research on its persistence, by identifying organizational silence as a mechanism through which leaders actively maintain wrongdoing. It argues that organizational silence is a mechanism conceptually distinct from, yet complementary to, normalization, with each contributing to the persistence of wrongdoing over time. The next section reviews the concept of employee silence and its antecedents. The article then analyses two case studies to explore the strategic role of leadership in promoting silence through managerial practices and the design of organizational structures and processes. The final section discusses the findings, outlines their theoretical implications, and concludes.

2. Silence in Organizations: Concept, Antecedents and the Role of Leadership

Silence in organizations refers to the "widespread withholding of information about potential problems or issues by employees" (Morrison and Milliken, 2000, p. 706). Many studies have associated silence with negative consequences for both employees and organizations, including burnout (Sherf, Parke and Isaakyan, 2021), lower job satisfaction and organizational commitment (Efthymiopoulos, Goula and Psychogios, 2024), reduced task performance and creativity (Ozer, Chen and Tang, 2024), and uncivil interpersonal behaviour (Weiss and Zacher, 2025). Why, then, do individuals remain silent rather than speak up?

One strand of research focuses primarily on individual-level explanations to account for employees' withholding of concerns, opinions, or information (employee silence). Morrison and Milliken (2000) and Milliken, Morrison and Hewlin (2003) identified several reasons why employees choose to remain silent, including: concerns about damaging interpersonal relationships (e.g. being viewed negatively by colleagues or supervisors and losing trust, respect, or social support); fear of retaliation (e.g. job loss and missed promotions); and perceptions of futility, based on the belief that top management is unresponsive and that raising concerns is unlikely to produce meaningful change.

Over time, this line of research has led to a multidimensional conceptualization of silence, distinguishing four types of silence based on the motivations underlying employees' decisions to withhold relevant information. Pinder and Harlos (2001) distinguished between acquiescent silence and quiescent silence. Acquiescent silence refers to a form of silence rooted in resignation, whereby employees accept the status quo because they see little value in attempting to influence organizational decisions. Quiescent silence, by contrast, is a self-protective form of silence motivated by fear of the personal consequences of speaking up. Van Dyne, Ang and Botero (2003) subsequently introduced the concept of prosocial silence, referring to the intentional withholding of information for the benefit of other individuals or the organization. Finally, Knoll and Van Dick (2013) identified opportunistic silence, whereby employees strategically withhold information in order to secure personal advantages.

A second approach conceptualizes silence as a collective phenomenon shaped by the strategic choices of top management and referred to as organizational silence. Rather than emerging from a series of isolated individual decisions, silence is understood as the product of organizational characteristics and managerial practices that systematically discourage employees from voicing concerns (Morrison and Milliken, 2000). This perspective shifts attention from individual motivations to the organizational context in which silence is created and sustained. In particular, it highlights the strategic role of management in fostering silence, defined as the "widely shared perceptions among employees that speaking up about problems or issues is futile and/or dangerous" (Morrison and Milliken, 2000, p. 708).

Top management influences organizational silence through both direct and indirect strategies. Directly, abusive leadership discourages dissent and increases employees' propensity to remain silent (Xu, Loi and Lam, 2015). More generally, leaders may suppress voice through behaviours that dismiss, devalue, or trivialize employees' concerns, thereby signalling that speaking up is unwelcome or unlikely to result in meaningful

action (Morrison and Milliken, 2000; Pilinkaite Sotirovic et al., 2024). Indirectly, top management can foster silence by shaping organizational structures and processes (Morrison and Milliken, 2000; Donaghey et al., 2011) to create barriers to both vertical and horizontal communication (Bird, 1996). Centralized decision-making may exclude operational employees or professionals from high-level decisions, preventing them from providing feedback and voicing concerns (Morrison and Milliken, 2000). Entwistle and Doering (2024), for instance, show how the exclusion of clinicians from high-level decision-making processes prevented them from effectively communicating upward their concerns about the declining standards of care provided by the hospital.

Silence may also be reinforced by the absence of effective mechanisms for soliciting employee feedback after decisions have been made or by the creation of formal spaces for voice in which only innocuous issues can be raised (Morrison and Milliken, 2000; Bird, 1996). Management can use employer-sponsored structures and processes to redirect or neutralize potentially disruptive feedback, thereby organizing employees out of meaningful voice (Donaghey et al., 2011).

Finally, management can sustain silence by discouraging horizontal communication and discussion among members. By isolating work units and departments, limiting interaction, and fostering competition rather than cooperation, leaders can reduce opportunities for employees to exchange information, discuss doubts, and collectively reflect on the ethical implications of organizational practices. Such arrangements fragment information across the organization and make it more difficult for individuals to recognize shared concerns or develop an understanding of potentially problematic activities, thereby reducing opportunities for collective sensemaking and dissent (Bird, 1996).

3. Creating and Sustaining Organizational Silence: The Role of top Management

3.1 Case Studies and Data

The article analyses two cases involving financial/medical fraud and alleged sexual abuse, respectively. These constitute extreme case studies (Flyvbjerg, 2006), as they concern forms of wrongdoing characterized by high moral intensity (Jones, 1991) because of the magnitude of consequences, the degree of social consensus regarding the wrongfulness of the behaviour, the probability and concentration of its effects, and its proximity and temporal immediacy. Extreme cases are particularly valuable for theory development because they activate a broader range of actors and organizational processes, thereby making underlying mechanisms more readily observable (Flyvbjerg, 2006). Specifically, in the cases examined here, the high moral intensity of the wrongdoing makes its normalization more difficult, allowing the strategic actions through which leaders sustain organizational silence and maintain wrongdoing to emerge more clearly.

The first case concerns Theranos. Founded in 2003 by Elizabeth Holmes, then a chemical engineering student at Stanford University, Theranos was a Silicon Valley startup whose name combined the terms “therapy” and “diagnosis”, reflecting the company’s aim to develop an innovative technology for the early diagnosis of disease. Its proprietary device, the miniLab, was designed to perform a wide range of blood tests using only a few drops of blood obtained through a finger prick, thereby significantly reducing the time and cost of laboratory testing (U.S. District Court, 2020). From 2009 onwards, Holmes was joined in leading the company by Ramesh “Sunny” Balwani, her partner, who held several key positions, including the presidency. Under their leadership, Theranos achieved a valuation exceeding $9 billion, employed over 500 people, and secured partnerships with major U.S. retail chains, including one of the country's largest supermarket chains and its second-largest pharmacy chain, to provide blood-testing services directly in retail locations. However, Holmes and Balwani concealed serious flaws in the company’s technology. Many tests were performed using commercially available laboratory equipment rather than Theranos' proprietary devices, while the results produced by the company’s technology were frequently unreliable. In 2022, Holmes and Balwani were convicted of defrauding investors, and Balwani was also found guilty of defrauding patients.

The second case concerns allegations of sexual abuse made by four Australian swimmers against their coach between 2001 and 2005, relating to incidents that allegedly occurred during the 1980s and between 1997 and 1999. Although the Coach was never found guilty of any criminal offence, for reasons unrelated to the substance of the allegations, the case prevented him from obtaining a Blue Card, a certification introduced by the Queensland government in 2001 to prevent individuals considered potentially unsuitable or dangerous from working with minors. Despite being refused a Blue Card, the Coach continued to work with young athletes until 2012. In particular, from 1997 he served as Head Swimming Coach at the Queensland Academy of Sport, a state-funded organization established to support élite athletes across a range of sports. Between

2010 and 2012, he also held the position of Head Coach at Swimming Queensland, the governing body for competitive swimming in the state of Queensland.

To reconstruct the organizational processes through which silence was created and sustained, the analysis draws on multiple sources. For the Theranos case, the data include court documents, online reviews posted by former employees on Indeed, Glassdoor, and Reddit, a series of documentaries, investigative journalism programs, and the book "Bad Blood: Secrets and Lies in a Silicon Valley Startup", an investigative account written by journalist John Carreyrou, who helped uncover the scandal. The swimming case draws primarily on the investigative material produced by the Australian Royal Commission into Institutional Responses to Child Sexual Abuse, established in 2013 to investigate institutional failures in responding to child sexual abuse. Specifically, the analysis is based on the Report of Case Study No. 15, transcripts from eight public hearings conducted by the Commission involving 45 witnesses, including alleged victims and members of the organizations concerned, and the report prepared by the Counsel Assisting the Royal Commission. Together, these sources provide detailed evidence of leadership practices and organizational arrangements through which silence was created and sustained.

3.2 Theranos

The Theranos case reveals both direct and indirect strategies through which top management created and sustained silence. Directly, Theranos' leadership discouraged voice through degradation and intimidation of employees who raised issues, even when they did so in a constructive effort to address organizational problems. Employees expressing concerns were subjected to degradation ceremonies aimed at placing them in an inferior social position within the organization by reducing their status, authority, and control over specific resources (Gephart, 1978). For instance, they were labelled as "cynical" or as "naysayers" (Carreyrou, 2019, p. 187), while their competence was often called into question.

Theranos' top management further sustained silence by cultivating and exploiting employees' dependence on the organization. The company recruited numerous Indian nationals whose immigration status in the United States was contingent upon continued employment at Theranos. This condition created a pronounced power asymmetry between management and employees, making these employees particularly likely to comply with organizational demands rather than challenge questionable practices.

A third direct strategy through which top management sustained silence was the systematic dismissal of employees who raised concerns or called for change. Under Balwani's management, firings were so frequent, abrupt, and opaque that employees coined the expression "Sunny disappeared someone" (Carreyrou, 2019, p. 87) to describe the sudden removal of colleagues.

Indirectly, Theranos' leadership sought to sustain silence by restricting the flow of information—both horizontally across departments, and vertically between departments and the board of directors. The exchange of information was discouraged not only through managerial directives but also through the design of organizational processes. Work was organized into small, highly segregated groups that operated largely in isolation from one another, creating a condition of structural secrecy (Vaughan, 1999) in which the fragmentation of information made it difficult for individuals to identify organizational wrongdoing.

The fragmentation of work processes was reinforced by severe restrictions on employees' access to information. Internal messaging systems were shut down (Carreyrou, 2019), and strict limits were placed on access to documents and operational data. These restrictions were so extensive that they produced paradoxical situations. For example, the laboratory director, despite being responsible for ensuring the accuracy of test results provided to physicians and patients, was denied access to quality-control data. Taken together, these organizational arrangements constrained employees' ability to assemble a comprehensive picture of organizational activities, thereby limiting opportunities for questioning, dissent, and voice.

3.3 Australian Swimming Case

The Australian swimming case also reveals that top management used both direct and indirect strategies to create and sustain silence. In 2000, the Queensland government enacted the Commission for Children and Young People Act 2000 (CCYPA), which required employers to obtain suitability clearances for employees working with minors from the Commission for Children and Young People and Child Guardian (CCYPCG). Although government agencies were exempt from this requirement, from 2008 onward the Queensland Academy of Sport decided to require Blue Cards for all of its employees. Even though the Coach was the only one who failed to obtain certification, he remained in his position because the top management of both the

Academy and Swimming Queensland considered his expertise essential for the success of Queensland élite swimming and, accordingly, they exerted pressure on their lower managers to prioritize performance over safeguarding concerns. The Executive Director of the Academy at that time explained that he had confirmed the Coach as Head Coach despite the absence of a Blue Card because "I was advised by my superiors [the performance directors] that it was in the best interests of swimming to continue to employ him" (Royal Commission, 2014a, p. 8393).

This situation did not substantially change after February 2010, when the Coach was appointed Head Coach of Swimming Queensland even though, unlike the Academy, Swimming Queensland was not exempt from the Blue Card requirement. The organization justified this decision by arguing that the CCYPA applied only to positions primarily responsible for providing services and activities to children, whereas the Head Coach was responsible for coaching other coaches, managing the organizational aspects of international competitions, and performing administrative duties (Royal Commission, 2014a, pp. 8314, 8324, 8365, 8398). In practice, however, the Coach continued to have regular contact with young athletes, both on pool decks, in private conversations, and during international trips (Royal Commission, 2014a, pp. 8236, 8324–8326, 8356; Royal Commission, 2014b, pp. 8529–8530).

Indirectly, top management sought to sustain silence by ensuring the absence of effective internal monitoring and control structures. At the Academy, the Executive Director acknowledged that no specific measures had been adopted to mitigate the risks associated with the Coach's continued employment. Instead, the organization relied on voluntary reporting, which was "primarily informal" and not part of any routine monitoring process (Royal Commission, 2014a, pp. 8362–8365). A similar situation emerged at Swimming Queensland. The Royal Commission concluded that "there is no evidence of any formal or structured supervision of Mr Volkers", despite Swimming Queensland's attempts to characterize his position as one involving only supervised access to children (Royal Commission, 2015, p. 135; Royal Commission, 2014a, pp. 8338–8340). Taken together, these arrangements suggest that organizational leaders did not merely overlook potential risks. Rather, they structured the organizational context in ways that allowed concerns to remain unaddressed and unspoken, thereby reducing opportunities for scrutiny, challenge, and voice.

4. Discussion and Conclusion

Despite substantial differences in industry, organizational form, and the type of wrongdoing involved, the cases of Theranos and Australian high-performance swimming reveal a common organizational mechanism through which wrongdoing is sustained over time: top management actively creates and maintains organizational silence, suggesting that the persistence of wrongdoing is not merely an unintended by-product of organizational life or a wholly self-reinforcing process. Rather, the findings indicate that organizational silence constitutes a distinct, yet complementary, mechanism.

The two cases reveal that leaders sustain organizational silence through a combination of direct strategies (based on interpersonal interactions) and indirect strategies (based on the design of organizational structures and processes) (Table 1).

Table 1: Leadership's strategies for organizational silence

	Australian swimming case	**Theranos**
Direct strategy	Rationalization	Threats; degradation; retaliation
Indirect strategy	Compartmentalization of information (through weak monitoring and reporting systems)	Compartmentalization of information (through restricted access to documents, fragmented work processes, communication restrictions)

Direct strategies, in both cases, consist of leaders signalling to organizational members that questioning organizational priorities or practices carries negative consequences, although pressures took very different forms. In the Australian swimming case, this was achieved primarily through rationalizations that framed questionable practices as necessary for organizational success and encouraged lower-level managers to prioritize performance over safeguarding concerns. In Theranos, by contrast, leaders relied heavily on threats and degradation to silence employees, a finding consistent with previous research (Morrison and Milliken, 2000; Pilinkaite Sotirovic et al., 2024). At the same time, the Theranos case extends this literature by illustrating that leaders may strategically increase their leverage over employees by increasing employees' dependence and vulnerability.

A second category consists of indirect strategies that operate through the design of organizational structures and processes. Notably, in both cases, leaders' strategies were very different but shared a common goal: constraining the circulation of information within the organization. In the Australian swimming case, leaders pursued this objective through the absence of effective monitoring, reporting, and control systems. In Theranos, this objective was achieved through restrictions on communication and the isolation of work units. In both cases, the arrangements reduced opportunities for organizational members to develop a shared understanding of potentially problematic practices or even to become aware of them. Previous research has shown that organizational structures may unintentionally contribute to wrongdoing by fragmenting information, diffusing responsibility, and generating conditions of structural secrecy (Vaughan, 1999; Catino, 2013). Our findings extend this literature by suggesting that such arrangements may also be deliberately designed and maintained by leaders as mechanisms for producing organizational silence. In this respect, the function of organizational structures is not merely operational but also political, as they regulate access to information, constrain communication, and limit opportunities for scrutiny and dissent.

These findings contribute to the literature on organizational wrongdoing in three ways. First, they complement explanations based on the normalization of wrongdoing by bringing insights from the literature on organizational silence. Specifically, they show that the persistence of wrongdoing depends not only on employees coming to view wrongdoing as normal or acceptable, but also on their reluctance to voice concerns due to fear, perception of futility, and dependence on the organization. Second, the article highlights the strategic role of top management in sustaining wrongdoing. Rather than treating leaders primarily as initiators of wrongdoing, our findings show how they also actively maintain organizational conditions that suppress dissent. The persistence of wrongdoing thus depends not only on normalization, but also on leaders' continuing efforts to prevent concerns from being raised and acted upon. These efforts are crucial for explaining why wrongdoing persists despite the presence of organizational members who recognize problems and might otherwise speak up. Third, the article suggests that leaders can adopt a mix of direct and indirect strategies to create organizational silence, depending on the specific contexts. Despite this variation, both cases reveal that controlling the circulation of information is fundamental to sustaining organizational silence and, ultimately, to maintaining wrongdoing over time. Future research on organizational wrongdoing should therefore pay greater attention to understanding how leaders structure organizational contexts to suppress dissent, with particular attention to the informational dimension.

Ethical Statement: Ethical approval was not required for this study because it relied exclusively on publicly available sources, including court documents, official reports, publicly accessible media materials, and online content.

AI Statement: The author used AI to assist with copy editing.

References

Ashforth, B. and Anand, V. (2003) "The normalization of corruption in organizations", *Research in Organizational Behavior*, Vol. 25, pp. 1–52.

Bird, F.B. (1996) *The muted conscience: Moral silence and the practice of ethics in business*, Quorum Books, Westport, CT.

Carreyrou, J. (2019) *Una sola goccia di sangue. Segreti e bugie di una startup nella Silicon Valley*, Mondadori, Milano.

Catino, M. (2013) *Organizational Myopia: Problems of Rationality and Foresight in Organizations*, Cambridge University Press, New York.

Culiberg, B. and Mihelič, K.K. (2017) "The evolution of whistleblowing studies: A critical review and research agenda", *Journal of Business Ethics*, Vol. 146, No. 4, pp. 787– 803.

Donaghey, J., Cullinane, N., Dundon, T. and Wilkinson, A. (2011) "Reconceptualising employee silence: Problems and prognosis", *Work, employment and society*, Vol. 25, No. 1, pp. 51–67.

Efthymiopoulos, A., Goula, A. and Psychogios, A. (2024) "Organizational Silence and Organizational Commitment: Empirical Evidence from the Greek Public Sector", *Journal of Applied Social Science*, Vol. 18, No. 3, pp. 346–363.

Entwistle, T. and Doering, H. (2024) "Amoral Management and the Normalisation of Deviance: The Case of Stafford Hospital", *Journal of Business Ethics*, Vol. 190, No. 3, pp. 723–738.

European Commission (2025) Citizens' attitudes towards corruption in the EU in 2025, Eurobarometer Report.

Fleming, P., Zyglidopoulos, S., Boura, M. and Lioukas, S. (2022) "How Corruption is Tolerated in the Greek Public Sector: Toward a Second–Order Theory of Normalization", *Business & Society*, Vol. 61, No. 1, pp. 191– 224.

Flyvbjerg, B. (2006) "Five Misunderstandings About Case-Study Research", *Qualitative Inquiry*, Vol. 12, No. 2, pp. 219–245.

Gabbioneta, C., Clemente, M. and Greenwood, R. (Eds.) (2023) *Organizational wrongdoing as the "foundational" grand challenge: definitions and antecedents*, Emerald Publishing Limited, London.

Gephart, R.P. (1978) "Status Degradation and Organizational Succession: An Ethnomethodological Approach", *Administrative Science Quarterly*, Vol. 23, No. 4, pp. 553–581.

Greve, H., Palmer, D. and Pozner, J.E. (2010) “Organizations Gone Wild: The Causes, Processes, and Consequences of Organizational Misconduct”, *Academy of Management Annals*, Vol. 4, No. 1, pp. 53–107.

Jones, T.M. (1991) "Ethical Decision Making by Individuals in Organizations: An Issue-Contingent Model", *Academy of Management Review*, Vol. 16, No. 2, pp. 366–395.

Knoll, M. and van Dick, R. (2013) “Do I Hear the Whistle…? A First Attempt to Measure Four Forms of Employee Silence and Their Correlates”, *Journal of Business Ethics*, Vol. 113, pp. 349–362.

Milliken, F.J., Morrison, E.W. and Hewlin, P.F. (2003) “An Exploratory Study of Employee Silence: Issues that Employees Don’t Communicate Upward and Why”, *Journal of Management Studies*, Vol. 40, No. 6, pp. 1453– 1476.

Mintzberg, H. (1987) "The Strategy Concept I: Five Ps for Strategy", *California Management Review*, Vol. 30, No. 1, pp. 11–24.

Morrison, E.W. (2023) “Employee voice and silence: Taking stock a decade later”, *Annual Review of Organizational Psychology and Organizational Behavior*, Vol. 10, pp. 79–107.

Morrison, E.W. and Milliken, F.J. (2000) “Organizational silence: a barrier to change and development in a pluralistic world”, *Academy of Management Review*, Vol. 25, No. 4, pp. 706–731.

Ozer, M., Chen, T. and Tang, J.W. (2024) “Detrimental Effects of Remaining Silent about Operational Concerns at Work: Implications for employee outcomes”, *Organization Studies*, Vol. 45, No. 11, pp. 1611–1643.

Palmer, D. (2012) *Normal Organizational Wrongdoing: A Critical Analysis of Theories of Misconduct in and by Organizations*, Oxford University Press, Oxford.

Palmer, D., Smith–Crowe, K. and Greenwood, R., (Eds.) (2016) *Organizational Wrongdoing: Key Perspectives and New Directions*, Cambridge University Press, New York.

Pilinkaite Sotirovic, V., Lipinsky, A., Struzińska, K. and Ranea–Triviño, B. (2024) “You Can Knock on the Doors and Windows of the University, but Nobody Will Care: How Universities Benefit from Network Silence around Gender–Based Violence”, *Social Sciences*, Vol. 13, No. 4, 199.

Pinder, C.C. and Harlos, K.P. (2001) “Employee silence: Quiescence and acquiescence as responses to perceived injustice”, *Research in Personnel and Human Resources Management*, Vol. 20, pp. 331–369.

Rocchi, S. (2025) “Quando perseverare è diabolico: uscita, voce e lealtà come meccanismi di mantenimento dell’Organizational Wrongdoing”, *Sociologia del Lavoro*, 172/2025, pp. 225–242.

Royal Commission (2014a) *Public Hearing. Case Study 15*, day 79, Sydney, Royal Commission into Institutional Responses to Child Sexual Abuse.

Royal Commission (2014b) *Public Hearing. Case Study 15*, day 80, Sydney, Royal Commission into Institutional Responses to Child Sexual Abuse.

Royal Commission (2015) Report of case study No. 15. Response of swimming institutions, the Queensland and NSW Offices of the DPP and the Queensland Commission for Children and Young People and Child Guardian to allegations of child sexual abuse by swimming coaches.

Sherf, E.N., Parke, M.R. and Isaakyan, S. (2021) “Distinguishing Voice and Silence at Work: Unique Relationships with Perceived Impact, Psychological Safety, and Burnout”, *Academy of Management Journal*, Vol. 64, No. 1, pp. 114–148.

U.S. District Court (2020). Third Superseding Indictment UNITED STATES OF AMERICA ELIZABETH A. HOLMES and RAMESH "SUNNY" BALWANI, CR 18–0258 EJD.

Van Dyne, L., Ang, S. and Botero, I.C. (2003) “Conceptualizing employee silence and employee voice as multidimensional constructs”, *Journal of Management Studies*, Vol. 40, No. 6, pp. 1359–1392.

Vaughan, D. (1996) *The Challenger Launch Decision: Risky Technology, Culture, and Deviance at NASA*, Chicago, IL, The University of Chicago Press.

Vaughan, D. (1999) “The Dark Side of Organizations: Mistake, Misconduct, and Disaster”, *Annual Review of Sociology*, Vol. 25, pp. 271–305.

Weiss, M. and Zacher, H. (2025) “Still Waters Run Deep: How Employee Silence Affects Instigated Workplace Incivility Over Time”, *Journal of Business Ethics*, Vol. 201, No. 3, pp. 587–604.

Xu, A.J., Loi, R. and Lam, L.W. (2015) “The bad boss takes it all: How abusive supervision and leader-member exchange interact to influence employee silence”, *The Leadership Quarterly*, Vol. 26, No. 5, pp. 763–774.

Perceiving Human–AI Creative Competition: An Exploratory HCC Discourse Study

Orsolya Sadik-Rozsnyai and Barbara Caemmerer
ESSCA, School of Management, Angers, France

orsolya.sadik-rozsnyai@essca.fr
barbara.caemmerer@essca.fr

Abstract: As organizations confront accelerating waves of digitalization, a central question emerges: how does generative AI reshape work, roles, and value creation in ways that challenge established understandings of creativity and human contribution? The rapid diffusion of generative AI has intensified debates about how creative work is being reorganized, redistributed, and increasingly automated in contemporary organizations. While Human–Computer Co-Creativity (HCC) research has emphasized collaboration between humans and machines, emerging evidence suggests that AI also introduces new competitive tensions that challenge existing assumptions about creative agency, role boundaries, and the future of creative labor. In response to these developments, this study explores how practitioners articulate these tensions in everyday sensemaking. Specifically, we address the following research question: How does public online discourse extend or challenge existing Human–Computer Co-Creativity frameworks when interpreting AI's growing role as a potential creative competitor? Drawing on a qualitative discourse analysis of naturally occurring conversations on social media we identify how participants make sense of shifts in creative processes, professional identities, and labor dynamics as generative AI becomes embedded in organizational practices. Three thematic configurations emerge: Constrained Co-Creative Agency, where AI remains tool-like and limited; Advancing AI Co-Agency, where AI begins to shape creative decisions and elevate competitive pressures; and AI-Dominant Creative Substitution, where participants report or anticipate the displacement of human creative roles. Our findings show that public discourse both reinforces and extends HCC theory by revealing how practitioners negotiate not only collaboration but also competition and substitution as AI systems assume greater generative initiative. The study contributes to ongoing conversations on AI and digitalization by illuminating how creative workers interpret the reconfiguration of creative labor, the redefinition of skill requirements, and the restructuring of value creation in AI-enabled organizations. We argue that understanding these emergent interpretations is essential for anticipating how generative AI will reshape work practices and roles.

Keywords: Digital transformation, Human–computer Co-creativity, Generative AI, Creativity

1. Introduction

Digitalization has long been a catalyst for organizational transformation, reshaping how work is structured, coordinated, and valued. Across sectors, advances in automation, data-driven decision-making, and platformization have altered business models, workflows, and skill requirements. The emergence of generative artificial intelligence (AI) represents a new inflection point in this trajectory—one that extends automation from routine tasks into domains traditionally understood as creative, interpretive, and meaning-making. As organizations increasingly integrate generative AI tools into design, communication, writing, and content-production processes, questions arise about how creative roles are being redefined and how humans perceive their place in these evolving socio-technical systems.

Research on GenAI in creative contexts is still in its early stages but is developing rapidly (Heigl, 2025). We frame the study with Human–Computer Co-Creativity (HCC), which conceptualizes creativity as distributed across human and computational actors and emphasizes mixed-initiative processes, role negotiation, and co-agency. Early research in Human–Computer Interaction (HCI) approached creativity primarily through the lens of creativity support tools, framing technology as an aid to human ideation and execution. The more recent evolution toward Human–Computer Co-Creativity (HCC) shifts this perspective by considering how computational systems can act as active contributors—sometimes proposing ideas, selecting alternatives, or modifying artifacts alongside human creators. Scholars have emphasized the potential of such mixed-initiative systems to foster new forms of creative exploration, enabling humans to traverse conceptual spaces that would be difficult to reach alone (Lin et al., 2023; Yannakakis et al., 2014). Yet, as generative AI systems gain unprecedented autonomy, speed, and productive capacity, they also challenge core assumptions of HCC: that the computer remains a supportive partner rather than a creative competitor, and that humans retain control over creative direction, evaluation, and authorship.

At the same time, public and industry discourse increasingly suggests that generative AI may be reshaping labor markets in creative industries (Zhao, 2024). Designers, writers, developers, and content producers report shifting expectations about productivity, skill requirements, and the economic value of creative labor. Some describe generative AI as a powerful extension of human capability; others view it as a competitor capable of

displacing tasks—or entire roles—once performed by humans. These perceptions matter: how workers, freelancers, and founders understand AI's role in creativity shapes adoption practices, workplace dynamics, and the broader evolution of creative professions.

Despite these developments, existing scholarship offers limited insight into how people outside formal research settings make sense of AI's growing participation in creative work. Organizational change does not occur solely through strategic initiatives or the technological affordances of new tools; it also unfolds through the meanings actors attach to these tools and the narratives through which they interpret shifting boundaries between human and machine agency. Social-media discussions represent a rich source of such meaning-making, capturing real-time reflections, anxieties, and expectations from individuals directly encountering generative AI in their work.

This paper offers three main contributions. Conceptually, it extends the Human–Computer Co-Creativity (HCC) framework by foregrounding the competitive dimension of human–AI creative relations, showing that co-creativity is not experienced solely as collaboration but also as a shifting negotiation of agency, initiative, and substitution across a continuum from constrained assistance to AI-dominant creative roles. Empirically, it provides a discourse-based analysis of naturally occurring public conversations in which creative practitioners and observers negotiate authorship, value, and role boundaries with AI—revealing how users articulate emerging forms of co-agency, meritocratic pressures, and perceived displacement within everyday creative work. Practically, the study distills implications for designing human–AI workflows that preserve meaningful human agency, suggesting the need for workflow structures, skill development, and organizational practices that acknowledge both collaborative possibilities and competitive tensions as generative AI becomes increasingly embedded in creative production

2. Literature Review

Early work on computers and creativity emphasized that computational systems may assume multiple roles in the creative process, ranging from managerial support to active collaboration. Lubart (2005) famously characterized computers as nanny, pen-pal, coach, or colleague, foreshadowing the possibility that systems may act as creative partners in their own right.

Where traditional AI operates within fixed problem-solving constraints, generative AI introduces a qualitatively different ambition: its purpose is not merely to compute, but to produce new artifacts, ideas, and forms. Generative AI shifts interaction from task execution to collaborative iteration. This real-time dialogue supports creative discovery by accelerating variation and encouraging experimentation. This transformation reframes creativity as a distributed process: rather than relying on passive tools, humans now co-create with generative systems that contribute ideas, variations, and refinements (Geroimenko, 2025).

Thus, Generative AI technologies are reshaping the human–computer relationship by pushing the field from a classical HCI (Human-Computer Interaction) model—centered on usability, control, and task efficiency—toward a Human–Computer Co-Creativity (HCC) paradigm where systems assume an active generative role (Lin et al*.,* 2023). In this emerging view, AI becomes a co-creative partner capable of contributing ideas, variations, and novel combinations across various domains. This shift from Human–Computer Interaction (HCI) to Human–Computer Co-Creativity (HCC) is not incremental but paradigmatic (Geroimenko, 2025).

Wingström et al. (2024) contribute a human-centered perspective through 52 interviews with computer scientists and new media artists in Finland, showing that while both groups draw on similar elements to define creativity, they attribute different roles to AI: scientists rely on AI for accuracy and reliability, whereas artists use it more for exploration and experimentation, with some describing their practice as genuinely co-creative.

Human–Computer Co-Creativity is regarded as a means of extending creative exploration, enabling humans to access conceptual spaces they would struggle to reach independently. Mixed-initiative systems in particular have been shown to support this expanded search process by introducing alternative directions, variations, and suggestions that push creators beyond their habitual patterns (Yannakakis et al., 2014).

In this perspective, Ivcevic and Grandinetti (2024) discuss the co-creation scenario in which AI acts as a catalyst for human creativity. They argue that AI can support creators across a continuum of four creative levels—from mini-c creativity involved in learning, to little-c everyday creativity, to Pro-C professional creativity, and ultimately Big-C eminent creativity. Rafner et al. (2023) argue that integrating insights from psychological science into generative AI systems could transform our understanding of creativity and unlock deeper synergies within human–AI hybrid creative interfaces.

HCC research also seeks to update classical creativity perspectives for co-creative settings. Expanding on Rhodes (1961), Kantosalo and Takala (2020) propose the "Five C's"—collective, collaboration, contributions, community, and context—to analyze how creative agency is distributed, coordinated, and evaluated in human–machine ensembles. A creative human–computer collective involves at least one human and one computational partner engaged in joint creative activity. Their collaboration comprises both individual and shared creative processes, supported by ongoing interactions between the agents. The outcome of this collaboration is an artifact that reflects the distributed contributions of the collective and is ultimately communicated to a broader community of peers, audiences, and other social influences. Crucially, this co-creative process unfolds within a specific context that shapes and enables the creative act.

Although HCC foregrounds the possibilities of collaboration between humans and AI, it simultaneously highlights the competitive tensions emerging as AI acquires creative agency. As Atkinson and Barker (2023) argue, generative systems can reconfigure disciplinary boundaries and taste cultures by supplying creative outputs that rival those produced by humans.

Geroimenko (2025) argues that HCC requires us to rethink not only what technology can do but what creativity can become when machines contribute actively to the creative process, projecting a future in which art, science, and human potential are jointly reconfigured by human–machine co-production. This reframing surfaces a cluster of contested questions, including how augmentation balances against replacement in shaping human creative development.

From a broader labor-market perspective, Chen et al. (2025) show that generative-AI automation has heterogeneous effects: it reduces labor demand and lowers skill requirements in structured cognitive-task occupations, while simultaneously increasing both demand and skill complexity in roles that involve human–AI collaboration.

In a study of six AI-integrated commercial products, Erickson (2024) analyzes how generative technologies intersect with labor processes in creative industries. Although the case studies show little immediate substitution—indeed, AI frequently created new forms of labor—the findings point to emerging competitive dynamics, indicating that widespread industry adoption may lead to future displacement or restructuring of creative roles.

Specifically in creative sectors, Clarke and Joffe (2025) examine the introduction of generative AI tools into creative workplaces by conducting 17 ethnomethodologically informed interviews with international creative-agency professionals. Their analysis shows how workers actively re-specify the division of labor with AI, including how tasks are delegated to generative systems, how AI-produced contributions are modified or remediated, and how practitioners manage these outputs to meet the expectations of internal and external stakeholders. As contributions, the authors conceptualize generative-AI prompting as a form of situated, reflexive delegation; demonstrate that creatives must continually configure and repair AI role boundaries to sustain intelligibility and accountability in the workplace; and introduce the notion of interpretive templatized trust, whereby workers adapt automated generative templates to local contexts in order to maintain stakeholder confidence.

Taken together, these perspectives suggest that Human–Computer Co-Creativity (HCC) must now be understood within an evolving landscape where collaboration and competition increasingly intersect. While HCC scholarship has traditionally emphasized how generative systems can expand human creative possibilities through mixed-initiative processes, the literature also reveals growing tensions as AI begins to enter creative domains with outputs that challenge established practices, roles, and standards. Yet, despite these emerging dynamics, relatively little is known about how such competitive tensions are actually perceived, articulated, and negotiated in the everyday interpretive work of practitioners, founders, and creative workers themselves. Existing research rarely examines how public discourse extends or contests theoretical assumptions about shared agency, co-creative roles, or the boundaries of machine creativity.

This paper addresses that gap by turning to naturally occurring online conversations, where users reflect in real time on the shifting distribution of creative agency between humans and AI. By examining how these communities describe, justify, or resist the idea of AI as a creative competitor, our study contributes to ongoing debates about the future of co-creativity. Accordingly, we investigate the following research question: How does public online discourse extend or challenge existing Human–Computer Co-Creativity frameworks when interpreting AI's growing role as a potential creative competitor?

3. Methodology

This exploratory study adopts a qualitative discourse-analytic design to investigate how online participants make sense of emerging competitive dynamics between human and AI creativity. Given that perceptions of technological change often materialize first in informal, public discussions rather than in formal organizational settings, social-media discourse offers a valuable site for capturing real-time sensemaking. Following the Human–Computer Co-Creativity (HCC) framework, which foregrounds how humans interpret shifting roles, agency, and creative boundaries with computational partners, we examine how individuals articulate, negotiate, and contest AI's evolving role in creative work. The study is explicitly exploratory, seeking to map discursive patterns rather than test predefined hypotheses.

The empirical material consists of a Reddit thread discussion about creative job shifting in the context of the emergence of AI, posted and actively commented on between October and December 2025. This thread was selected because it attracted a large number of contributions from individuals identifying as designers, developers, writers, founders, and creative freelancers—all professions directly exposed to generative-AI tools. The thread provides naturally occurring, unsolicited, and peer-to-peer exchanges, making it a suitable corpus for capturing situated perceptions and spontaneous accounts of workplace change.

Data were analyzed using reflexive thematic analysis. First, all comments were manually coded to identify expressions related to AI's perceived creative agency, labor substitution, skill changes, role boundary shifts, and evaluations of creative quality. Codes were then manually iteratively grouped into higher-order categories to capture recurring interpretive patterns. This process led to the identification of three dimensions reflecting increasing levels of perceived creative substitution. In total, the dataset for these three dimensions comprised 130 quotes. For each dimension, we derived three major sub-dimensions that help explain the underlying patterns shaping these perceptions.

Rather than seeking platform representativeness or demographic generalization, the analysis aims to surface how online communities collectively construct meaning around human–AI creative relations during a period of rapid technological change.

We analyzed only publicly accessible posts and did not interact with users at any point. To protect participant privacy, we anonymized all quotations, removed usernames, timestamps, and any uniquely searchable strings, and altered the wording of selected excerpts, preserving their meaning. These procedures follow established recommendations for ethical research using publicly available online data (Adams, 2024).

4. Findings

We present three thematic perceptions that emerged from our qualitative analysis, each illuminating how online participants make sense of Human–AI competitive dynamics in creativity across their reported practices, value judgments, and skill trajectories. Read together, these themes trace a graduated spectrum—from no replacement to it's already happening: Constrained Co-Creative Agency (views that emphasize AI's current limitations and the continued centrality of human oversight), Advancing AI Co-Agency (accounts in which AI's speed, adequacy, and initiative begin to shift creative tasks away from humans, often through merit-based differentiation), and AI-Dominant Creative Substitution (claims that creative roles are already being bypassed, compressed, or replaced in practice).

4.1 Constrained Co-creative Agency (AI is not yet a Creative Competitor)

This dimension captures a view in which participants position current generative systems as accelerators but not as substitutes—at least for now—for human-led creative intent. In this perspective, AI is understood as part of a long continuum of creative tools rather than a disruptive creative rival: it expedites early-stage production while remaining reliant on human direction, evaluative judgment, and contextual refinement to achieve distinctive and durable results. While they do not constitute an exhaustive representation of the discourse, three dimensions provide especially meaningful insight into how and why AI continues to be perceived as constrained in its co-creative agency: first, its outputs tend toward Reduced Creative Distinctiveness; second, it is often framed within a Tool Continuum rather than as a transformative creative actor; and third, its utility is largely confined to Early-Stage Augmentation rather than full creative authorship.

Table 1: Summary table Constrained Co-Creative Agency dimension

Pattern	What it captures	Illustrative quotes
Reduced Creative Distinctiveness	AI's generative capacity expands production volume but tends toward homogeneity, accelerating the replication of familiar patterns	"AI certainly speeds up and lowers the cost of producing content, but what it generates often ends up looking fairly generic" "Generative AI seems to offer only a limited level of novelty and originality"
Tool-continuum	AI is positioned as the next step in a long tooling arc in creativity, not a true creative rival	"To me, this simply feels like the next step in making tools more efficient " "The AI output replaced a standardized template, not a creative professional's role"
Early-Stage Augmentation	While AI can handle foundational tasks and initial proofs of concept, the advancement of a project ultimately depends on human creative expertise	"AI can support plenty of creative tasks, but much of its output needs human correction." "Building a compelling brand still requires human oversight, experimentation, and refinement".

4.2 Advancing AI Co-agency (AI as an Emerging Creative Competitor)

This dimension captures a view in which participants increasingly frame generative systems as capable co-creative actors—no longer limited to accelerating routine production, but beginning to intrude into areas of creative initiative and outcome quality that were traditionally regarded as human domains. In this perspective, AI appears to move beyond its historical status as a supportive tool: it can now deliver creative output with enough autonomy, speed, and adequacy to be perceived as an emerging creative competitor. Within this evolving stance, participants articulate three patterns that, while not exhaustive, provide valuable insight into how AI is coming to be viewed as possessing competitive co-creative agency: first, signs of Accelerated Machine Initiative, where AI begins to shape or steer creative directions; second, forms of Meritocratic Competitiveness, through which AI raises performance thresholds and rewards creatives who can strategically leverage it; and third, a sense of Competitive Erosion of Human Creative Value as AI's adequacy challenges the distinctiveness and perceived necessity of human contributions.

Table 2: Summary table Advancing AI Co-agency dimension

Pattern	What it captures	Illustrative quotes
Accelerated Machine Initiative	AI demonstrates increasing generative initiative, producing creative outputs quickly and autonomously enough to appear as an active contributor rather than a passive tool.	"I worked with a colleague on a small project, and we assembled layout pieces and visual references we found online, fed them into the system, and let it generate options. After only a few cycles, it produced something nearly complete." "By providing colors and keywords through vibe coding, I generated a placeholder interface whose final quality was comparable to my own design output"
Meritocratic Competitiveness	AI intensifies competitive pressures within creative work by raising quality expectations rewarding creatives who can elevate quality and strategic value.	"What if the quality standards produced by AI surpass yours, resulting in better user engagement, higher traffic, and stronger overall performance?" "The project suffered from weak UI/UX work; an AI tool may have helped it progress more smoothly".
Competitive Erosion of Human Creative Value	AI's rising capability reduces the perceived distinctiveness and value of human creative contributions, fostering a sense of being replaced or outperformed.	"With clients able to build a tailored site in a single day using these tools, the demand for professional creatives drops significantly" "This illustrates that AI tools can be imperfect yet still good enough to do the job"

4.3 AI-dominant Creative Substitution (AI is Replacing Creative Labor)

This dimension captures a view in which participants perceive generative AI not merely as an influential co-agent but as a system increasingly capable of *replacing* human creative labor altogether. In this perspective, AI is no longer framed as a complementary partner within creative workflows but as a substitute that can autonomously deliver outputs once requiring human skill, time, and professional expertise. Participants

describe roles being reduced, bypassed, or entirely eliminated as AI assumes responsibility for tasks across writing, design, and content production—often at a fraction of the time and cost. While not exhaustive, three meaningful patterns provide insight into how and why AI is perceived as displacing human creative agency: first, *System-Level Displacement of Creative Roles*, where AI directly undertakes tasks previously assigned to human specialists; second, *Structural Reconfiguration of Creative Labor*, as AI compresses workflows and redistributes responsibilities across fewer human actors; and third, the *Expansion of Machine-Led Creative Autonomy*, in which AI is viewed as increasingly capable of performing full creative processes—from ideation to execution—with minimal human oversight.

Table 3: Summary table AI-Dominant Creative Substitution dimension

Pattern	What it Captures	Illustrative quotes
System-Level Displacement of Creative Roles	AI is perceived as directly replacing human creative professionals rather than merely assisting them. Participants report vanished roles, halted hiring, and human outputs being bypassed because AI can now deliver acceptable—or even superior—results.	"As a professional writer and journalist, I'm already seeing AI take over work that used to go to humans. The output has become so polished that most readers either can't tell the difference or simply don't mind." "The ability to build a website quickly may reduce clients' dependence on creative professionals"
Structural Reconfiguration of Creative Labor	AI compresses or reorganizes creative workflows, enabling individuals to bypass specialized roles and perform multi-role functions with AI support. This shifts value away from distributed creative teams toward lean, AI-enabled production models.	"Using an AI assistant, I can now build a full website in a single day—the same person can handle everything by prompting the system." "if a company had a team with 10 designers, now they only need 1 senior with AI tools"
Expansion of Machine-Led Creative Autonomy	Participants describe AI as taking over entire creative processes—from ideation to execution—with speed, adequacy, and autonomy that surpass human capacity. AI becomes capable of producing complete outputs with minimal human oversight, redefining creative agency.	"After more than a decade in front-end development, it still surprises me that one prompt can now generate a nearly finished webpage—most of the structure and visuals are done instantly." "I am prototyping a feature as a product manager. I wrote the PRD and normally would have sent this to our $100/hr designer. Instead I put the PRD in Figma Make, I had something that was exactly what I wanted."

5. Discussion

This study examined how online participants make sense of the shifting relationship between human and AI creativity at a moment when generative systems are rapidly transforming creative workflows. It makes three principal theoretical contributions. First, it extends HCC theory by showing that AI is interpreted not only as a co-creative partner but also, in some cases, as a potential creative competitor. Building on the work of Lubart (2005), which offers an early view of computers as creative collaborators, and on more recent accounts of AI as a catalyst for human creativity (Ivcevic & Grandinetti, 2024), our findings suggest that AI's active role in creativity is perceived as ambivalent. The three dimensions identified — Constrained Co-Creative Agency, Advancing AI Co-Agency, and AI-Dominant Creative Substitution — capture a continuum from support to partial substitution, showing that co-creativity is also a space of negotiation over authorship, standards, and value.

Second, the findings contribute to debates on AI and creative labor. In line with Chen et al. (2025), participants describe AI as more likely to affect routine, structured, or template-based creative tasks, while increasing the importance of higher-order skills such as judgment, taste, and strategic direction. This also resonates with the view of Erickson (2024) that AI may create new forms of labor and future competitive pressures rather than simply replacing creative workers. Our study adds that these transformations are interpreted through a hierarchy of creative work, where some tasks are viewed as more automatable than others.

Third, the study extends workplace-oriented research on AI in creative industries. Clarke and Joffe (2025) show that creative professionals renegotiate the division of labor with AI through delegation, remediation, and boundary repair. Our findings show that similar boundary work also appears in online discourse, where

participants debate what counts as a legitimate creative contribution. The ability to prompt, evaluate, curate, and refine AI outputs is increasingly framed as part of creative value, while routine or easily reproducible contributions are seen as more vulnerable to substitution.

Taken together, these insights extend HCC theory by showing that contemporary human–AI creativity is not only collaborative but also shaped by competitive and substitutive dynamics. Generative AI is perceived both as a tool that can enhance creativity and as a technology that may reshape the boundaries between human expertise and machine-generated output. We therefore suggest understanding contemporary human–AI creativity as a form of competitive co-creativity, where human and machine contributions are combined, evaluated, and negotiated in relation to authorship, expertise, and professional identity.

From a managerial perspective, the study suggests that organizations should support AI integration while acknowledging concerns about displacement and changing skill expectations. As AI takes over some routine or template-based tasks, creative roles may need to be redefined around judgment, creative direction, aesthetic coherence, and strategic sense-making. Organizations should also provide targeted training in prompting, curation, and responsible evaluation of AI outputs, while communicating transparently about how AI adoption may affect roles and workflows.

6. Conclusion

This study examined how public online discourse interprets the evolving relationship between human and AI creativity. It makes three main contributions. Conceptually, it extends HCC literature by showing that AI is perceived not only as a creative partner but also as a potential competitor. Empirically, it shows how naturally occurring online discourse reveals emerging negotiations around authorship, value, role boundaries, and displacement. Practically, it suggests that organizations should design human–AI workflows that support creative agency while addressing the competitive tensions created by generative AI.

The study has limitations. Because it relies on online conversations, it captures public sensemaking rather than direct workplace practices or individual creative processes. The findings may also reflect the specific norms and demographics of the communities studied. Future research could extend this work through interviews, workplace ethnographies, or cross-platform comparisons.

From a policy perspective, the findings suggest the need to move beyond a simple augmentation-versus-replacement debate. Policy makers, educators, and professional bodies should support responsible AI adoption by strengthening AI literacy, clarifying authorship and accountability, and protecting human capacities such as judgment, originality, and ethical responsibility.

Ethics Declaration: Ethical clearance was not required for the research

AI Declaration: AI tools were used as writing and editing assistants during the preparation of this paper. They supported tasks such as refining wording for clarity, and helping structure sections of the manuscript. AI was also used as a reflective aid to reinforce conceptual development, for example, by helping compare alternative formulations, articulate theoretical distinctions, and improve the coherence of the argument. All conceptual decisions, analytical interpretations, coding processes, and theoretical contributions, were made by the authors.

References

Adams, N.N. (2024) “Scraping’ Reddit posts for academic research? Addressing some blurred lines of consent in growing internet-based research trend during the time of Covid-19”, *International Journal of Social Research Methodology*, Vol. 27, No. 1, pp. 47–62.

Atkinson, D.P. and Barker, D.R. (2023) “AI and the social construction of creativity.” *Convergence: The International Journal of Research into New Media Technologies*, Vol. 29, No. 4, pp. 1054–1069.

Chen, W.X., Srinivasan, S. and Zakerinia, S. (2025) “Displacement or Complementarity? The Labor Market Impact of Generative AI*”, Working Paper 25-039*, Harvard Business School.

Clarke, M. and Joffe, M. (2025) “Beyond replacement or augmentation: How creative workers reconfigure division of labor with generative AI” arXiv preprint arXiv:2505.18938.

Erickson, K. (2024) “AI and work in the creative industries: digital continuity or discontinuity?”, *Creative Industries Journal*, pp. 1–21.

Geroimenko, V. (2025) “Generative AI: From Human–Computer Interaction to Human–Computer Creativity” In: Geroimenko, V. (ed.) *Human–Computer Creativity*. Springer Series on Cultural Computing. Cham: Springer, pp. 1–22.

Heigl, R. (2025) “Generative artificial intelligence in creative contexts: a systematic review and future research agenda”, *Management Review Quarterly*, Vol. 76, pp. 955–992,

Ivcevic, Z. and Grandinetti, M. (2024) “Artificial intelligence as a tool for creativity “, *Journal of Creativity*, Vol. 34, No. 2, pp. 100079

Kantosalo, A. and Takala, T. (2020) “Five C’s for Human–Computer Co-Creativity — An Update on Classical Creativity Perspectives.” In *Iccc*, pp. 17-24.

Lin, Z., Ehsan, U., Agarwal, R., Dani, S., Vashishth, V. and Riedl, M. (2023) “Beyond prompts: Exploring the design space of mixed-initiative co-creativity systems*”.* arXiv preprint arXiv:2305.07465.

Lubart, T. (2005) “How can computers be partners in the creative process: Classification and commentary on the Special Issue”, *International Journal of Human–Computer Studies*, Vol. 63, No. 4–5, pp. 365–369.

Rafner, J., Beaty, R.E., Kaufman, J.C., Lubart, T. and Sherson, J. (2023) “Creativity in the age of generative AI.” *Nature Human Behaviour*, Vol. 7, No. 11, pp. 1836–1838.

Rhodes, M. (1961) “An analysis of creativity.” *The Phi Delta Kappan*, Vol. 42, No. 7, pp. 305–310.

Wingström, R., Hautala, J. and Lundman, R. (2024) “Redefining creativity in the era of AI? Perspectives of computer scientists and new media artists”. *Creativity Research Journal*, Vol. 36, No. 2, pp. 177-193.

Yannakakis, G.N., Liapis, A. and Alexopoulos, C. (2014) “Mixed-initiative co-creativity.” In: *Proceedings of the International Conference on Foundations of Digital Games*.

Zhao, B. (2024) *Replacement of human artists by AI systems in creative industries.* UNCTAD. Available at: https://unctad.org/news/replacement-human-artists-ai-systems-creative-industries

Repurposing Organizational Learning Processes to Facilitate Sensemaking/Sensegiving in a Memetic Digital Twin Environment

Ulrich Schmitt
Stellenbosch Business School, Bellville, South Africa
Knowcations Start-up, Port Louis, Mauritius

schmitt@knowcations.org

Abstract: This paper addresses the persistent 'structural hole' between the academic domains of Organizational Learning (OL) and Knowledge Management (KM) by proposing a unified, multi-layered sociotechnical architecture. Following the track-CFP on AI and Digitalization in a Changing Business World, the research moves beyond technological hype to demonstrate how sophisticated digital architectures can mirror and scale cognitive structures. By integrating Crossan's classic 4I learning framework and Jones's and Macpherson's 5I extension into an eight-stage continuum running from I0 Ideating to I7 Intersecting, the paper maps these phases across a 12-Slot-Workflow ensuring that fluid grassroots knowledge exploration can occur without inducing systemic oscillation or cascading collapse. By consolidating knowledge across progressing 'I0-I7-bytes' in analogy to Cesar Hidalgo's notion of person-, firm-, and network-bytes, the generic approach is applied to three complementing operational tracks supporting a Memetic Digital Twin (MDT) environment: a conventional OL/KM flow, a personal knowledge worker's authorship cycle (sensemaking), and a community platform's curation cycle (sensegiving). Grounded in Design Science Research (DSR), the paper introduces this differentiation as the RUNGS-Ontology (Relational Universal Networked Generative Scaling) operationalized as an Adaptive Management Framework for facilitating digital leadership with a traceable, cybernetic system engine.

Keywords: Organizational learning (OL), Knowledge management (KM) & co-creation, Absorptive capacities (AC), Cybernetics, RUNGS-ontology, Architecture for canvas ecosystems (ACE), Memetic digital twin (MDT)

1. Introduction

1.1 Contextualizing the OL-KM Structural Hole

The academic domains of Organizational Learning (OL) and Knowledge Management (KM) occupy heavily overlapping conceptual terrain regarding how modern institutions utilize information, yet they have historically evolved within distinct intellectual silos. This divergence has generated a profound 'structural hole' (Burt, 2017) where theory-rich cognitive learning phases fail to interface directly with operational, systems-driven execution architectures. Epistemologically, the two fields operate on fundamentally conflicting assumptions regarding the nature of knowledge assets (Brix, 2017). KM heavily aligns with an 'epistemology of possession', treating knowledge as an objective, static 'stock' to be captured, codified, and distributed within technological repositories. Conversely, OL aligns with an 'epistemology of practice', viewing knowledge as an ongoing, fluid 'flow' deeply intertwined with human actions, behaviour adjustments, and organizational routines. Conceptually, OL focuses almost entirely on the socio-psychological dynamics of error detection, unlearning, and paradigm shifts under the umbrella of 'how organizations learn', while KM remains functionally targeted toward managing the concrete asset outcomes resulting from those learning loops. Bibliometrically, science mapping and co-citation analyses regularly separate the two fields, clustering OL with organizational psychology and leadership, while pinning KM to information systems, computer science, and competitive data strategy. Recent literature confirms that this theoretical fragmentation persists into 2026; an integrative systematic review (Aljuwaiber, 2026) highlights that contemporary studies still treat these domains as isolated islands, marginally integrating KM with OL and other perspectives to rationalize business performance, outcomes, and sustainability.

1.2 The Problem of Digital Stagnation

The consequences of this structural hole are increasingly severe under modern business environments characterized by severe infoxication, knowledge wastes, and volatile artificial intelligence hype. Most legacy KM models were established under last century's conditions of information scarcity and offer inadequate systemic guidance to counter modern cognitive overloads. Corporate implementation frameworks frequently allow KM to superficially absorb OL, prioritizing highly marketable technological assets over deep, behavioural and psychological adaptations (Castaneda, Manrique and Cuellar, 2018). This dynamic results in a purely cosmetic integration that erases the human routines necessary to absorb external disruptions. This operational siloing produces a stark disconnect where complex institutions rely heavily on explicit, static data repositories while completely neglecting the human learning cultures and adaptive leadership required to make systems function. Consequently, organizations encounter an 'appropriation-versus-participation dilemma' that deters

grassroots knowledge workers from actively contributing their unique insights (Rechberg and Syed, 2014). When information technology availability fails to access the 'optimal zone' of organizational learning, the sociotechnical ecosystem degrades, resulting in 'abandoned' structural holes, 'flooded' redundant entropy, and 'flooded rivers' of real-time data overload (Hortovanyi and Ferincz, 2014). Widely used strategic visualization canvases remain inherently descriptive, representing static snapshots rather than kinetic system nodes capable of active portfolio curation. Current literature leaves a critical void regarding the precise connecting flow profiles required to bridge decentralized user networks with centralized platform systems, leaving organizations vulnerable to systemic stagnation.

1.3 The Proposed MDT Resolution

By bridging this structural gap, recent developments in sociotechnical system designs have proposed the concept of Memetic Digital Twins (MDT) based on a SICECE workflow (Schmitt, 2025, 2026c). Building upon this emerging architectural paradigm, recent research utilized the concept to demonstrate how conventional static business model canvas configurations can be decontextualized, dynamized, and then recontextualized to serve business model innovation for entrepreneurs and start-up factories (Schmitt, 2026b, 2026a). This paper utilizes the same initial base of a SICECE-12-Slot-Workflow to bridge the academic KM-OL gap. It introduces three new multi-layered cybernetic loops as a governance framework, transforming the traditional structural hole into an integrated learning ecosystem. By expanding Crossan's 4I model (Crossan, Lane and White, 1999) and Jones's and Macpherson's 5I extension (Jones and Macpherson, 2006) into an eight-phase Organizational Learning Extension running from I0 (Ideating) to I7 (Intersecting), this study demonstrates that these eight phases not only serve institutional learning processes, but also symmetrically apply to decentralized, iterative memetic lifecycles (personal MeSpheres) and centralized curation workflows (community WeSpheres). Grounded in Design Science Research (DSR), conceptual analysis, and systems thinking, the paper is structured to operationalize this matrix across the sections ‘Literature Review’, ‘RUNGS-Ontology’, and ‘Conclusions’.

2. Literature Review and Conceptual Foundations

2.1 Reconciling the KM-OL-Performance-sustainability Nexus: Insights from a Meta-review

The multi-layered ontology to be presented directly addresses the critical empirical realities uncovered in the most recent literature. A major systematic review comprehensively analyzed 70 landmark empirical and theoretical studies (2020-2026) for their efforts to address knowledge management, organizational performance, and long-term business sustainability holistically (Aljuwaiber, 2026). Their findings provide robust evidence that KM practices consistently enhance enterprises’ innovation capabilities and operational efficiency, thereby boosting sustainable competitive advantages across diverse socio-economic sectors. Crucially, they confirm that these performance enhancements do not occur automatically but need to be heavily mediated: “Leadership commitment, collaboration culture, trust, employee competencies, digital infrastructure, and performance measurement systems can strengthen or weaken KM’s effect on learning, innovations, and final outcomes” (Aljuwaiber, 2026). However, they also expose a severe vulnerability in contemporary management theory: the current literature remains plagued by profound conceptual inconsistencies, empirical contradictions, and fragmented theoretical perspectives. They conclude that the academic domain completely lacks a coherent, unified framework capable of aligning leadership, organizational culture, and technological execution architectures (Aljuwaiber, 2026), reinforcing the urgent necessity for the theory-driven cybernetic synthesis exemplified in this paper.

2.2 Deepening the Organizational Learning Continuum: The Foundational Phases and Beyond

To establish a rigorous framework for our triple environment, we must break down the four foundational phases of the classic 4I organizational learning framework (Crossan, Lane and White, 1999):

- I1. 'Intuiting', is defined as the preconscious recognition of patterns and possibilities inherent in a personal stream of experience, which shapes individual actions before being explicitly articulated.
- I2. 'Interpreting', involves the explaining, through words or actions, of an internal insight to oneself and to a wider group, serving as the cognitive bridge that moves knowledge from the preverbal to the verbal layer to develop a localized language.
- I3. 'Integrating', is the process of developing a shared understanding among individuals and taking coordinated action through mutual adjustment, where interactive team dialogue and joint action transform ad-hoc collaborations into recurring organizational practices.

- I4. 'Institutionalizing', is the process of ensuring that routinized actions occur by clearly defining tasks, specifying actions, and putting robust organizational mechanisms in place to embed individual and group learning securely into the corporate memory through formalized systems, structures, procedures, and long-term strategy.

In the author's integrated architecture, this I4 stage hardens fluid concepts into rule-based authorship and curating processes, and boundary object creation. This institutional baseline is broadened by utilizing an proposed inter-organizational I5 extension (Jones and Macpherson, 2006):

- 'I5. 'Intertwining', which orchestrates knowledge exchange across inter-organizational boundaries, balancing the tension between exploitation and exploration through four distinct transformations: 1) 'Acting' during ongoing exploitation, 2) 'Opening-up' to shift from exploitation to exploration, 3) 'Experimenting' during active exploratory loops, and 4) 'Focusing' as the system moves back from exploration to exploitation, completing the internal-to-external behavioral engine.

Section 3 focuses on the architectural transition from this I1-to-I5 flow to structurally expand the continuum into an eight-stage sequence running from I0-to-I7 by integrating the original five I-flows. This taxonomy further expands into twenty-four bi-directional (flow) R^{48}-dyads to create the RUNGS-Ontology (Relational Universal Networked Generative Scaling).

2.3 Cognitive Carrying Capacity and Structural Scaling: Hidalgo's Bytes

The physical and cognitive limitations of scaling these learning loops are governed by the data mechanics of Cesar Hidalgo's knowledge infrastructure (Hidalgo, 2015). Hidalgo introduces the *'person-byte*' as the elemental unit of analysis, representing the maximum capacity for explicit knowledge and tacit knowhow that a single individual can physically carry, absorb, and deploy within finite attention constraints. When an organization's operational complexity exceeds individual attention thresholds, collective interventions become mandatory, giving rise to the *'firm-byte*' - the total accumulated carrying and absorptive capacity (AC) of an institutional snapshot. As market dynamics and transactional expenditures shift, knowledge accumulation must scale further into *'network-bytes*', where diverse institutional capacities form complex, geographically and structurally circumscribed collaborative ecosystems. The RUNGS-Ontology (section 3) incorporates Hidalgo's person, firm, and network boundaries by integrating them within its larger I0-to-I7 and proprietary bi-directional R^{48}-dyads as twenty-four (stock) bytes, providing a quantified, multi-layered foundation for tracking data limits within an institutional, memetic, and curational digital platform architecture.

3. The RUNGS Framework: Operationalizing the Multi-layered Triple-Helix Architecture

3.1 Reconciling Organizational Learning and Knowledge Management

To resolve the persistent structural KM-OL-hole identified, this research expands the four foundational I4 phases (Crossan, Lane and White, 1999) and I5 network extension (Jones and Macpherson, 2006) and introduces an eight-phase Organizational-Learning-aligned I0-I7-continuum. While legacy management models treat learning exclusively as an internal socio-psychological or intra-organizational routine, the RUNGS-Ontology operationalizes these generic I#-phases and establishes a triple-applicability model that operates simultaneously across human-cognitive, memetic-evolutionary, and algorithmic-curational layers; it uses these socio-technical affordances to map, trace, and scale knowledge across structural boundaries. The eight I#-phases, their base definitions, and socio-technical layer manifestations are:

- *I0 Ideating:* Forming a raw concept or initial mental image in the mind to solve problems or seed innovations through upfront consistency checking and brainstorming. *Nano-Action Layer:* Initial admittance of shared submissions into local record architectures and upfront validation checks.
- *I1 Intuiting:* Preconscious recognition of patterns and latent possibilities inherent in a personal stream of experience that shapes individual actions before explicit articulation. *Individual Node Layer:* Pattern recognition by independent knowledge workers and subconscious matching within personal experiences.
- *I2 Interpreting:* Explaining an internal insight to oneself and others through words, symbols, or actions, shifting knowledge from preverbal to verbal to develop language. *Micro-Behavioral Layer:* Collaborative refinement within user networks and explicit rationalization of modifications back to peers.

- *I3 Integrating:* Developing shared understanding across an explicit group and executing coordinated actions through mutual adjustment, interactive dialogue, and joint action. *Consensus-Seeking Layer:* Mutual adjustments across decentralized teams and cumulative synchronization across local technical frameworks.
- *I4 Institutionalizing:* Ensuring routinized actions occur by clearly defining tasks, specifying actions, and putting organizational mechanisms in place to embed learning. *Meso-Operational Layer:* Hardening fluid concepts into rule-based curating processes, standardized smart templates, and boundary objects.
- *I5 Intertwining:* Linking intra- and inter-organizational contexts through exploration and exploitation loops via acting, opening-up, experimenting, and focusing shifts. *Boundary-Spanning Layer:* Exchange across corporate boundaries facilitated by external network capabilities and portfolio tracking.
- *I6 Interfusing:* Consolidating and curating verified community knowledge into an integrated knowledge graph to manifest a permanent digital footprint of shared heritages. *Macro-Societal Layer:* Alignment of organizational memes with the universal accumulated heritage of human knowledge in Popper's Third World.
- *I7 Intersecting:* Orchestrating a transdisciplinary space where separate conceptual perspectives, distinct corporate domains, and fragmented paradigms cross-pollinate. *Ecosystem Cross-Over:* Discerning high-level systemic harmonies and structural alignment among separate business industries.

Grounded in these eight distinct generic phases, the RUNGS-Ontology traces information asset trajectories as they transition from private thoughts within individual minds to a codified, institutionalized, and globally interfused knowledge aggregate (P-Helix), to a personal knowledge management (PKM) memetic repository or MeSphere (M-Helix), or, if voluntarily, shared, to the community's WeSphere (C-Helix). Rather than viewing knowledge as static stocks, RUNGS charts the helix-specific kinetic paths of information through four distinct topological vectors shown as pico-nano, micro-mini, meso-macro, and mega-meta progressions (Table 1). As delineated in the architecture (Table 1), the *RUNGS* Ontology consists of 24 distinct R^{48}-Dyads, arranged as bi-directional *Relational* pairs that map directly onto a 12-Slot SpaceTime-Sequence (Figure 1). When viewed through the lens of the triple environment (across three parallel helices), these dyads provide twenty-four unique name-pairs that represent *Universal* behavioral and computational logics. Due to the *Networked* multi-chain layers and cybernetic feedback loops inherent in the platform environment, knowledge seamlessly consolidates across distinct organizational, memetic, and curatorial topologies. This structural mapping ensures a *Generative* fit with contemporary digital transformation canvases, organizational frameworks, and knowledge management models (Probst, 1998; Schmitt, 2025, 2026b, 2026a). Crucially, *Scaling* within this architecture implies that accrued Absorptive Capacities (AC) are never trapped within an isolated operational silo or workflow slot.

Table 1: Relational Universal Networked Generative Scaling: 8-PMC-Helic-I#s presented as R^{48}-RUNGS-Dyads*

Socio-Technical Scale Abstract OL Phases I#	P-Helix: Rungs Bytes & Flows (Human/OL)	M-Helix: Rungs Bytes & Flows (Meme/Sensemaking)	C- Helix: Rungs Bytes & Flows (System/Sensegiving)
Focus:	**Governs human agency and social learning, mapping the cognitive transition from individual intuition to collective organizational action through iterative feedback, peer review, and inter-organizational reciprocity.**	**Tracks the metabolic evolution of information and memetic knowledge, defining how raw signals consolidate into textured memeplexes, portable boundary objects, and eventually reified facts within the shared knowledge heritage.**	**Enforces systemic integrity and archival governance, providing algorithmic vetting, rule-based codification, and storage ratification necessary to transform private, voluntarily shared contributions into permanent, universally trusted knowledge heritage.**
Pico to Nano **I0 Ideating** **I1 Intuiting**	D (View/Notion-Role/Action) Retaining / Recalling VB:DE Rallying / Reconfirming RB:D	E (Draft/Atom-Meme/Pattern) Resonating / Rebounding DB:E Registering / Recording MB:EF	I (Import/Noise-Update/Curation) Ruminating / Reflecting IB:I Refereeing / Reaching UB:IJ
Micro to Mini **I2 Interpreting**	C (Person/Behavior-Team/Consensus) Refining / Reworking PB:CD	F (MemePlex/Snippets-Graph/Grids) Rendering / Retracing XB:F	J (Whomer/Integrity-Yardstick/Metrics) Rationalizing / Refuting WB:J Reconciling / Realigning YB:JK

I3 Integrating	Reviewing / Reassessing TP:C		Roughing / Rebundling GB:FG	
Meso to Macro	B (Firm/Operations-Network/Boundary)		G (Asset/Artefacts-Synergy/Domains)	K (Ontology/Insights-Boundary/Templets)
I4 Institutionalizing	Regulating / Restricting FB:BC		Regimenting / Reordering AB:G	Rulemaking / Recoding OB:K
I5 Intertwining	Requiting / Reimbursing NB:B		Remediating / Refashioning SB:GH	Reciprocating/Rebalancing BB:KL
Mega to Meta	A (Community/Societal-Heritage/Generational)		H (Knowability/Connections-Ledger/Expertise)	L (Jointure/Connectivity-Enrichment/Negentropy)
I6 Interfusing	Routing / ReceivingCB:AB		Reticulating / Relating KB:H	Relaying / Rerouting JB:L
I7 Intersecting	Reverberating/Responding HB:A		Reifying / Rarefying LB:HI	Ratifying / Rescinding EB:LA

* R^{48}-dyad 1st term denotes primary initiating action (forward flow or core asset transaction) followed by 2nd evaluative, corrective, reactive counterpart: xx:yy - xx indicates the acronym of the applicable Bytes Type (as denoted in the same cell's top row; yy positions the Byte in the 12-slot-sequence A-L.

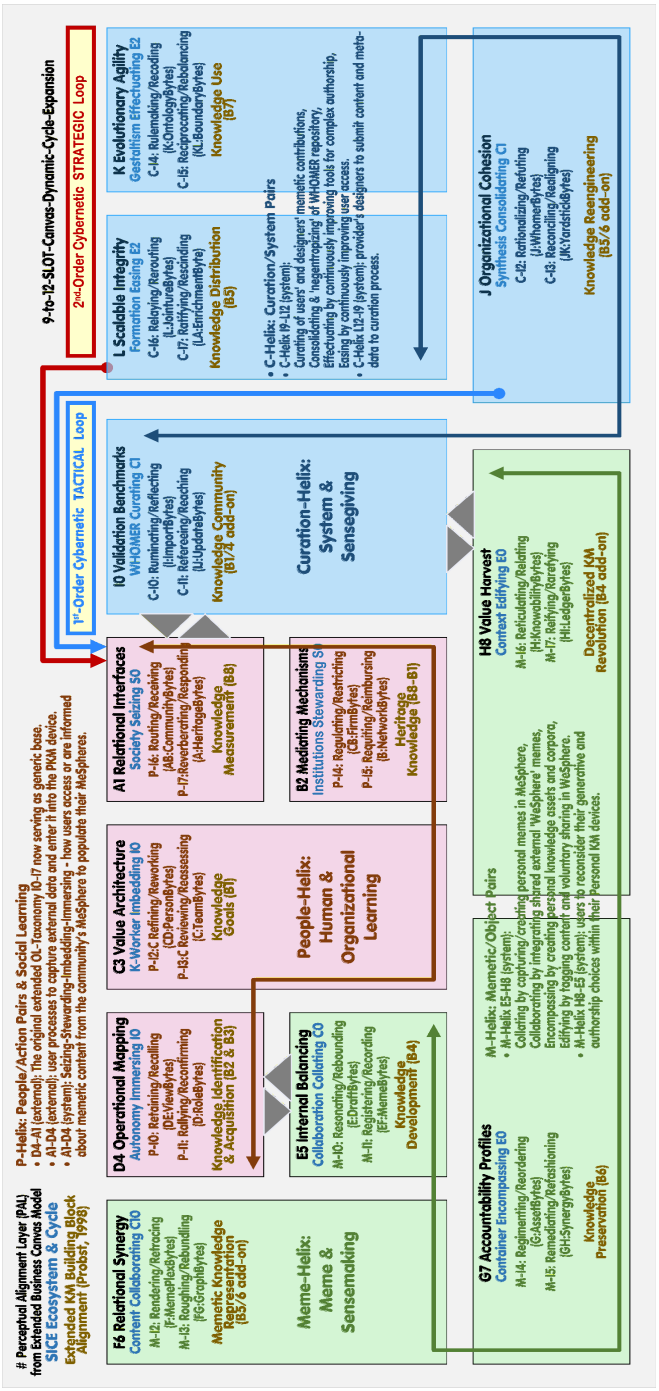


Figure 1: PMC-Helices' R48-Dyads (24 flows) and their R48-Bytes (24 stocks) in KM Context

3.2 The RUNGS Framework as a Sensemaking and Sensegiving Architecture

A 12-Slot-SpaceTime-Sequence functions as the foundational structural timeline that aligns the three parallel helices. Figure 1 demonstrates how the generic triple-eight-phase sequence blends into this 12-slot layout to support the sensemaking and sensegiving affordances of the SICECE cycle (visualized according to the Architecture for Canvas Ecosystems (ACE) previously established (Schmitt, 2026b, 2026a)). Instead of treating human learning, memetic evolution, and algorithmic curation as isolated or disjointed processes, the framework positions the 12 slots as an overarching structural timeline where specific knowledge transitions occur governed by decisions of users' choice, authorship, and sharing as well as the provider's curation and servitization and the community's involvement. This iterative asynchronous cycle directly accommodates three cybernetic loops: the user's personal MeSphere cycle (A1-H8-A1), the curation cycle for newly shared user contributions (I9-J10-A1), and the platform's servitization cycle (K11-L12-A1) which provides vital added value like metrics, notifications, or specific tools to ease complex authorship.

Table 2: PMC-Helices' R^{48}-Dyads (24 flows) and their R^{48}-Bytes (24 stocks)

P-Helix: People/Action (Social Learning)	M-Helix: Memetic/Object Pairs	C-Helix: Curation/System Pairs
P-I0: Retaining/Recalling (DE:ViewBytes) *Internal cognitive functions manage personal memory, allowing minds to retrieve past lessons for current ideation while ensuring that new concepts are persistently stored for future consistency.*	*M-I0: Resonating/Rebounding (E:DraftBytes)* *These energetic predicates define initial sensitivity, where signals vibrate against existing data or 'rebound' to the subconscious for further pattern recognition when no immediate cognitive matches are found.*	*C-I0: Ruminating/Reflecting (I:ImportBytes)* *Internal diagnostic functions govern systemic incubation, allowing curation engine to execute rules for consistency and negentropizing while auditing its performance to identify areas for further improvement.*
P-I1: Rallying/Reconfirming (D:RoleBytes) *R:pair governs transitions from intuition to action, where individuals gather mental evidence to support internal 'gut-checks' while constantly validating externalization against their experience.*	*M-I1: Registering/Recording (EF:MemeBytes)* *R:pair captures birth of records, marking moments signals are first captured/transcribed into symbolic code/content and ensuring their persistent logging/linking within personal systems of prior knowledge.*	*C-I1: Refereeing/Reaching (IJ:UpdateBytes)* *R:pair manages vetting intakes, finalizing initial gatekeeping checks for baseline compliance while extending systemic outreach to clarify submissions and ensure no potentially valuable record is lost.*
P-I2:C Refining/Reworking (CD:PersonBytes) *Predicates drive iterative polishing of concepts, where high-frequency peer feedback alternates between sharpening fluid ideas and their deconstructing to address fundamental flaws or logic errors*	*M-I2: Rendering/Retracing (F:MemePlexBytes)* *Predicates facilitate explication of thoughts, translating pre-verbal insights into tangible more complex concepts/prototypes while providing logical paths to verify rendered forms against their original sources.*	*C-I2: Rationalizing/Refuting (J:WhomerBytes)* *Terms provide systemic transparency for integrating newly shared 'Me-Sphere' contributions based on justified approved submissions with logged logic that maintains associative integrity of indexing.*
P-I3:C Reviewing/Reassessing (C:TeamBytes) *R:pair facilitates team-level synthesis, allowing to collectively evaluate shared work through dialogue while maintaining capacity to look back and correct misunderstandings for coordinated understanding.*	*M-I3: Roughing/Rebundling (FG:GraphBytes)* *R:pair manages information stability within groups, providing necessary textures and 'connector memes' to stay in shared 'container memes' while regrouping 'content memes'/components when configurations fail.*	*C-I3: Reconciling/Realigning (JK:YardstickBytes)* *R:pair generating capacity and performance metrics including triggering corrective adjustments whenever semantic conflicts or logical inconsistencies were detected during integration and documenting formally rejected non-compliant records for guiding contributors toward future improvement and alignment.*
P-I4: Regulating/Restricting (CB:FirmBytes) *Terms enforce institutional alignment, where system proactively directs actions toward established organizational codes while simultaneously identifying and halting any behaviors that deviate from standardized structural boundaries.*	*M-I4: Regimenting/Reordering (G:AssetBytes)* *Terms systemize by tagging 'context memes', coding information into rigid multidisciplinary protocols to enable internal structural adjustments and to resolve logical contradictions with existing aims or standards.*	*C-I4: Rulemaking/Recoding (K:OntologyBytes)* *Predicates drive systemic codification for updating algorithmic curation or user guidance protocols and for flexible rule/ontology modification to accommodate evolving multidisciplinary interpretations/standards.*
P-I5: Requiting/Reimbursing (B:NetworkBytes) *R:pair defines balanced reciprocity between institutional/organizational partners, ensuring that every contribution of knowledge or value is met with an equitable return of intellectual or strategic credit.*	*M-I5: Remediating/Refashioning (GH:SynergyBytes)* *R:pair ensures portability of memes, adjusting their medium for synergetic transfer/repurposing by allowing for reverse adaptation to optimize the information object for alternative utilities/applications.*	*C-I5: Reciprocating/Rebalancing (KL:BoundaryBytes)* *R:pair balances ecosystem synergetic exchange, managing value-exchange protocols for community benefitting tools while adjusting resource streams and affordances based on continuous metric feedback.*

P-Helix: People/Action (Social Learning)	M-Helix: Memetic/Object Pairs	C-Helix: Curation/System Pairs
P-I6: Routing/Receiving (AB:CommunityBytes) *Predicates manage flows of knowledge through network channels, facilitating intentional distributions of resources to industry/communities and formal acknowledgment of incoming data by stakeholders.*	*M-I6: Reticulating/Relating (H:KnowabilityBytes)* *Predicates integrate memes into absorptive capacity lattices, mapping their structural position within knowledge graphs via semantic links to ensure contextual connectivity across diverse domains/realms.*	*C-I6: Relaying/Rerouting (L:JointureBytes)* *Predicates manage distributed diffusion, promoting validated content for community consumption ensuring systemic resilience of data flows/APIs when specific network paths or nodes are compromised.*
P-I7:Reverberating/Responding (A:HeritageBytes) *R:pair governs exchanges between Institution/firm and its environment, where outward organizational impacts trigger inward adaptive strategies based on ecosystems' collective 'echo' or market feedback.*	*M-I7: Reifying/Rarefying (HI:LedgerBytes)* *R:pair describes knowledge transformations into heritage by solidifying abstract perspectives into objective facts for further value while essential principles are distilled to maintain the core's theoretical robustness.*	*C-I7: Ratifying/Rescinding (LA:EnrichmentByte)* *High-level R:pair governs trust engineering by providing formal systemic validation for permanent archival entry and by pursuing collaborative efforts for facilitating active community participation at all levels.*
Legend: (xx:Bytes - xx refers to the positional slot or gap of the named Bytes in the 12-slot-spacetime-sequence (A-L in Figure 1).		

As knowledge assets move through any given slot along this sequence, they trigger a tightly coupled, multi-layered behavioral response across all three operational tracks at once. For the P-Helix, the slot dictates the specific social learning roles and cognitive actions executed by the human actor. For the M-Helix, the slots determine how the respective memetic objects are rendered, textured, or bundled during its evolutionary sensemaking lifecycle. When voluntarily shared, the C-Helix executes the corresponding algorithmic validation, rule-enforcement, and vetting checks required to maintain systemic integrity and drive the platform's automated and emerging sensegiving features. This structural alignment ensures that each spatial-temporal slot coordinates human behavior, memetic modification, and curation governance systemically and holistically. By acting as a master choreographer, the 12-slot framework transforms the underlying matrix from a static taxonomy into a kinetic cybernetic engine, allowing memes to survive, to evolve into personal or co-created memeplexes, learning/knowledge assets, and corpora by transitioning from decentralized individual platforms into permanent, curated community WeSpheres. This novel approach (practiced already in the as-built genealogies of enterprise resource and supply chain management systems) allows digital leadership to transition from an 'appropriation reality' into a 'participation zone' where cohorts, teams, or institutions can be enabled and incentivized.

3.2.1 The P-Helix: People/action (social learning)

In the triple-helix, the P-Helix provides the creative fuel and the social validation required for the other helices to function. Without the P-Helix, the M-Helix would lack '*rendered*' content to metabolize, and the C-Helix would have no submissions to referee. Its synergy with the M-Helix is visible at I2 (*Rendering/Refining*), where human polish gives the meme its physical form. Its synergy with the C-Helix is most critical at I3 (*Reviewing/Reconciling*), where human team-consensus provides the '*social weight*' that allows the curation system to merge a record into the shared archive. Together, they ensure that knowledge is not just 'recorded' by a machine, but 'understood' and 'accepted' by a community. There are three key P-Helix scenarios applying the eight R^{48}-dyads (Table 2 left).

- D4-A1 (external): The original extended OL-Taxonomy I0-I7 now serving as generic base (Table 1).
- A1-D4 (external): user processes to capture external data and enter it into the PKM device.
- A1-D4 (system, Figure 1): Seizing-Stewarding-Imbedding-Immersing describes how users access or are informed about memetic content from the community's WeSphere to populate their MeSpheres.

3.2.2 The M-Helix: Memetic/object (information evolution)

The M-Helix serves as the connective tissue between human action and systemic governance. Its synergy with the P-Helix is a dance of '*polishing and texture'*: the person refines own or community ideas while the meme gains the structural '*roughness*' to be usefully employed. Its synergy with the C-Helix occurs at the standardization and tagging level (I4-I5); while the M-Helix undergoes *Regimenting*, turning a fluid thought into a hard, mobile, 'portable' asset, the C-Helix provides the *Rulemaking* for the underlying Logics and Logistics. This synergy ensures that the system doesn't just store 'data', but 'meaningful objects' that are resilient enough to survive the leap between different co-using or co-creating 'hosts' once voluntarily shared. Two key M-Helix scenarios are applying the eight R^{48}-dyads (Table 2 middle).

- M-Helix E5-H8 (system): Collating by capturing/creating personal memes in MeSpheres, Collaborating by integrating shared external 'WeSphere' memes, Encompassing by creating personal knowledge assets and corpora, Edifying by tagging content and voluntary sharing in WeSphere (Figure 1).
- M-Helix H8-E5 (system): users to reconsider their authorship choices within their PKM devices.

3.2.3 The C-Helix: Curation/system (WHOMER governance)

The C-Helix is the governor and guardian of the 'WHOMER-Sphere' (World Heritage of Memes Repository). It manages the technical and ethical boundaries of the system. It provides the structural skeleton that holds the three Helices together. Without the C-Helix, human learning (P) would be disorganized, and memes (M) would be chaotic and unverified. Its synergy with the P-Helix creates Transparency; the curation *Rationalizes* memeplexes back to the human originators. Its synergy with the M-Helix creates Authority; when the curation *Relays* a record to the WeSphere, the meme becomes *Reticulated* in a global lattice. This triple-synergy creates a Generative KM System: a self-correcting loop where human inspiration is captured, structurally evolved, and systemically validated until it reaches the state of 'Objective Truth' in Popper's Third World. Two key C-Helix scenarios are applying the eight R^{48}-dyads (Table 2 right):

- C-Helix I9-L12 (system): Curating users' and designers' memetic contributions, Consolidating 'negentropizing' and ensuring associative integrity of WHOMER repository, Effectuating by continuously improving tools for complex authorship, Easing by continuously improving user access (Figure 1).
- C-Helix L12-I9 (system): provider's designers to submit content and meta-data to curation process.

4. Conclusions, Contributions, and Impact on Leadership, Cooperation, and Behaviour

This paper directly addresses the track's core mandate to target the actual structural, behavioral, and leadership impacts of digital transformation. By introducing the RUNGS-Ontology, this study offers a concrete antidote to contemporary corporate vulnerabilities, bridging the persistent 'structural hole' between the asset-driven KM focus and behavioral OL routines. The underlying dynamics employed are very well researched from empirical and systemic perspectives (Pirolli and Card, 2005; Carvajal-Pérez *et al.*, 2018; Elia, Margherita and Passiante, 2020; Schmitt, 2025). Operationalized as an Adaptive Management Framework, the RUNGS architecture provides a stable relational template that allows organizations to scale their absorptive capacities systematically without inducing systemic oscillation or cascading collapse.

- On one hand, the generative fit of the triple-structural I0-I7-based PMC-Helices creates a symmetric taxonomy. Its structure tracks an idea from its pre-verbal, memetic inception all the way to a global, transdisciplinary integration of collective intelligence. It expands business system designers' degrees of freedom in terms of leverage, adaptability, malleability, and transferability (Zittrain, 2008; Eck, Uebernickel and Brenner, 2015). From this high-level bird's-eye perspective, RUNGS offers a robust Leadership Tool for strengthening absorptive capacities by emphasizing Sensemaking (memetic evolution) and Sensegiving (knowledge curation).
- On the other hand, as the scenarios in the subsections demonstrated, these benefits must be balanced against the risk of ambiguities by adequately reflecting on spacetime specifics as well as organizational details and preferences. Table 1 and 2, hence, depict the transformation of the I0-I7-taxonomy into the RUNGS-Ontology. Each slot of the 12-Slot-SpaceTime-Sequence is furnished with two bi-directional R^{48}-Dyads-Flows providing a unique alias to its common I# generic counterpart (Table 1). They not only accommodate the in/outflows to its prior/next slot neighbors but also account for flows and progress within the slot itself. The 24 Dyads-Flows are complemented by the 24 RUNGS-single-Bytes-Stocks located within each of the 12 slots and each of the 12 gaps between them (as any in-out-flow only completes once matched with an out-in-flow, gap-Bytes indicate payloads in transit). These RUNGS-Bytes integrate the aims of the *person-firm-network-bytes* referred to earlier (Hidalgo, 2015).

This RUNGS architecture qualifies as an ontology, because its explicitly defines entities (stocks as bytes, relational dynamics as bi-directional dyads, and structural rules across a 12-Slot-SpaceTime-Sequence) move it beyond a basic classification hierarchy 'taxonomy'. As it operates as a formal structural schema, its true ontological functionality provides a steady, immutable template of universal computational logics that can be

populated with application-specific aliases across personal '*MeSpheres*' and institutional or community '*WeSpheres*'. Its impact on leadership, cooperation, and behavior can be summarized as follows:

- *Transforming Work Tasks and Behavior:* The implementation of a Memetic Digital Twin (MDT) environment redefines modern work practices by mapping human cognitive flows across three complementing operational tracks. Through the triple-helix interplay of the People-OL, Memetic-Authorship, and Curation-Platform paths, raw individual insights are socialized, textured into portable boundary objects, and systemically curated.
- *Enhancing Intra- and Inter-Organizational Cooperation:* Rather than relying on static descriptive snapshots, the 12-Slot-SpaceTime-Sequence offers a kinetic engine where network cooperation is explicitly managed. The definition of macro-boundary and meta-generational stock bytes allows diverse institutional capacities to scale fluidly from individual 'MeSpheres' to collective 'WeSpheres'.
- *Digital Leadership and Long-Term Productivity:* By balancing decentralized user innovation with centralized platform governance, the framework moves past superficial IT deployment to deliver verifiable productivity enhancements. It offers digital leaders a traceable, cybernetic engine to instill user acceptance and counter infoxication and knowledge wastes by anchoring modern digitalization firmly within the universal heritage of human knowledge.

Acknowledgements

I would like to express my deepest appreciation to the staff and institutions of the Economic Development Board (edbmauritius.org), the Mauritius Research and Innovation Council (mric.mu), and La Plage Factory Africatech Business Incubator (laplage.io). The EDB's/MRIC's policies and National SME Incubator Scheme allow entrepreneurs from Mauritius or abroad (like me) to be considered for initially operating in partnership with one of the accredited Mauritian business incubators under the MRIC's aegis.

Ethics Declaration: No ethical clearance for the research was necessary.

AI Declaration: As AI tools are increasingly used by reviewers, I applied Gemini to also check my completed submission to confirm that my proposed solutions are indeed novel in the context of academic research as well as professional applications. To the best of my knowledge, after verifying the AI-generated results, this approach has not been previously pursued in academic or commercial realms.

References

Aljuwaiber, A. (2026) "An Integrative Systematic Review of Knowledge Management, Organizational Performance, and Business Sustainability," *Administrative Sciences*, 16(4), p. 185.

Brix, J. (2017) "Exploring knowledge creation processes as a source of organizational learning: A longitudinal case study of a public innovation project," *Scandinavian Journal of Management*, 33(2), pp. 113–127.

Burt, R.S. (2017) "Structural holes versus network closure as social capital," *Social capital*, pp. 31–56.

Carvajal-Pérez, D. *et al.* (2018) "Generative Heritage: Driving Generativity through Knowledge Structures in Creative Industries. Lessons from Cuisine," *15th International Design Conference*. Available at: https://doi.org/10.21278/idc.2018.0318.

Castaneda, D.I., Manrique, L.F. and Cuellar, S. (2018) "Is organizational learning being absorbed by knowledge management? A systematic review," *Journal of Knowledge Management*, 22(2), pp. 299–325.

Crossan, M.M., Lane, H.W. and White, R.E. (1999) "An organizational learning framework: From intuition to institution," *Academy of management review*, 24(3), pp. 522–537.

Eck, A., Uebernickel, F. and Brenner, W. (2015) "The generative capacity of digital artifacts: a mapping of the field." Association for Information Systems.

Elia, G., Margherita, A. and Passiante, G. (2020) "Digital entrepreneurship ecosystem: How digital technologies and collective intelligence are reshaping the entrepreneurial process," *Technological Forecasting and Social Change*, 150, p. 119791. Available at: https://doi.org/10.1016/j.techfore.2019.119791.

Hidalgo, C. (2015) *Why information grows: The evolution of order, from atoms to economies*. New York, NY, USA: Basic Books. Available at: https://scholar.google.com/scholar?hl=en&as_sdt=1%2C5&as_ylo=2012&q=Hidalgo+Why+Information+Grows&oq=+hi (Accessed: August 31, 2019).

Hortovanyi, L. and Ferincz, A. (2014) "The impact of ICT on learning on-the-job," *Organization*, 22(1), pp. 2–13.

Jones, O. and Macpherson, A. (2006) "Inter-organizational learning and strategic renewal in SMEs: extending the 4I framework," *Long Range Planning*, 39(2), pp. 155–175.

Pirolli, P. and Card, S. (2005) "The sensemaking process and leverage points for analyst technology as identified through cognitive task analysis," *Proceedings of international conference on intelligence analysis*. McLean, VA, USA, pp. 2–4.

Probst, G.J. (1998) “Practical knowledge management: A model that works,” *PRISM-CAMBRIDGE MASSACHUSETTS-*, pp. 17–30.

Rechberg, I.D. and Syed, J. (2014) “Appropriation or participation of the individual in knowledge management,” *Management Decision* [Preprint].

Schmitt, U. (2025) “Decentralizing Knowledge Management: Affordances and Impacts - Revisited,” *Proceedings of the 26th European Conference on Knowledge Management Vol. 2*. *ECKM 2025*, Lahti, Finland, 4-5 Sep: aci, pp. 877–887. Available at: https://doi.org/10.34190/eckm.26.2.3846.

Schmitt, U. (2026a) “Business Model Canvasses Revisited: Complementing Dynamic Layers for Start-up Investment and Entrepreneurial Perceptions,” *Proceedings of The 21st European Conference on Innovation and Entrepreneurship, Vol. 21 No. 1 (ECIE 2026)*. Lisbon, Portugal, 17-18 Sep: aci, pp. 639–647. Available at: https://papers.academic-conferences.org/index.php/ecie/article/view/5002/4759.

Schmitt, U. (2026b) “Business Model Canvasses Revisited: From Static Stagnation towards Dynamic Agile Feedback Cycles,” *Proceedings of the 27th European Conference on Knowledge Management (ECKM 2026)*. Rome, Italy, 3-4 Sep: aci, pp. 1141–1149. Available at: https://doi.org/10.34190/eckm.27.2.5003.

Schmitt, U. (2026c) “Memetic/Metaphorical Digital Twins: Extending Knowledge Co-Creation Across Economics, Architecture, and Beyond,” *Biomimetics*, 11(3). Available at: https://doi.org/10.3390/biomimetics11030220.

Zittrain, J. (2008) *The future of the internet–and how to stop it*. Yale University Press.

Digitalisation of Work Processes and Fear of Job Loss: Does Digital Risk Governance Play a Role?

Łukasz Sienkiewicz
Faculty of Management and Economics, Gdańsk University of Technology, Poland

lukasz.sienkiewicz1@pg.edu.pl

Abstract: The rapid digitalisation of workplaces is transforming how work is organised, coordinated, and controlled. Technologies such as AI-supported systems, automated task allocation, monitoring tools, wearable devices, and mobile digital infrastructures are increasingly embedded in organisational processes across sectors. While these developments may improve efficiency and flexibility, growing evidence suggests that they also generate psychosocial risks, including increased surveillance, work intensification, reduced autonomy, and fear of job loss. Existing research further indicates that these effects depend not only on the technologies themselves, but also on organisational practices surrounding their implementation. This paper examines the relationship between digitalisation of work processes and fear of job loss in European workplaces, with particular attention to the role of digital risk governance. Building on the literature on algorithmic management, psychosocial risks, and digital transformation, the study conceptualises workplace digitalisation as a multidimensional phenomenon encompassing both basic digital infrastructures and more advanced forms of algorithmic and AI-driven management. The literature review highlights that technologies associated with monitoring, coordination, and automation of work processes are most strongly linked to employment insecurity and psychosocial strain, while organisational mechanisms such as employee consultation, training, and digital risk assessment may mitigate these effects. The analysis draws on data from the Fourth European Survey of Enterprises on New and Emerging Risks (ESENER 2024), conducted by EU-OSHA, covering 41,458 establishments across EU Member States. Methodologically, the study combines latent class analysis (LCA) with weighted logistic regression models. LCA is used to identify distinct profiles of workplace digitalisation based on the adoption of technologies such as mobile devices, collaborative robots, automated task allocation systems, monitoring systems, AI-based systems, and wearable technologies. Regression models then examine the relationship between digitalisation profiles and fear of job loss, controlling for establishment size, sector, and country effects. Preliminary results indicate that highly digitalised and monitoring-intensive workplaces report significantly higher levels of fear of job loss than low-digitalisation workplaces. Technologies associated with monitoring and algorithmic coordination appear particularly relevant. In contrast, the digital risk governance practice index shows neither a significant direct association with fear of job loss nor a significant moderating effect.

Keywords: Workplace digitalisation, Fear of job loss, Digital risk governance, Psychosocial risks, Algorithmic management

1. Introduction

The rapid digitalisation of workplaces is transforming how work is organised, coordinated, monitored, and controlled across contemporary economies. Organisations increasingly adopt digital technologies such as AI-supported systems, automated task allocation tools, monitoring technologies, wearable devices, robotics, and algorithmic management systems. While these developments are frequently associated with efficiency gains and organisational flexibility, they also raise concerns regarding psychosocial risks, job quality, and employment security.

The growing integration of digital technologies into organisational environments reflects broader structural transformations associated with the digital economy, datafication, and the increasing use of artificial intelligence in managerial and operational processes. Digital technologies no longer function solely as tools supporting communication or administrative coordination, but increasingly shape core organisational processes and influence how decisions are made, work is evaluated, and organisational control is exercised. As a result, digital transformation has become not only a technological issue, but also an important organisational, social, and employment-related phenomenon.

These developments have intensified scholarly and policy debates concerning the implications of digital transformation for workers and workplaces. Existing discussions increasingly emphasise that the consequences of digitalisation extend beyond productivity and efficiency outcomes and include important psychosocial and organisational dimensions. In particular, concerns have emerged regarding intensified monitoring, changing forms of managerial control, growing dependence on algorithmic systems, and increasing uncertainty associated with technological change. Such concerns have become especially visible in debates surrounding algorithmic management, platform work, AI-supported management systems, and digitally mediated forms of labour coordination.

At the same time, the effects of digital transformation appear highly uneven across organisations and sectors. Digitalisation does not constitute a single or homogeneous process; rather, organisations adopt different

combinations of technologies that vary in intensity, purpose, and organisational implications. Some forms of digitalisation primarily support communication and operational efficiency, whereas others directly intervene in managerial functions such as monitoring, task allocation, workflow optimisation, and employee evaluation. Consequently, the organisational and psychosocial consequences of digitalisation may depend not only on the presence of digital technologies themselves, but also on how they are configured and embedded within organisational structures and managerial practices.

An additional challenge concerns the organisational governance of digital transformation processes. Increasing attention is devoted to whether organisations possess appropriate mechanisms to identify and manage risks associated with workplace digitalisation, including psychosocial risks related to employment insecurity, surveillance, work intensification, and changing skill requirements. Existing research increasingly highlights the importance of organisational practices such as employee consultation, communication regarding technological implementation, digital skills development, and risk assessment processes accompanying technological change. However, empirical evidence regarding the effectiveness of such governance mechanisms remains relatively limited, particularly in comparative and large-scale organisational analyses.

Despite rapidly growing literature on digital transformation and algorithmic management, several important research gaps remain. Existing studies frequently focus on specific technologies, sectors, occupations, or platform work settings, while less attention has been devoted to broader organisational configurations of workplace digitalisation across diverse work environments. Moreover, relatively limited evidence exists regarding how different forms of workplace digitalisation relate to psychosocial outcomes and whether organisational governance practices influence these relationships.

This study examines the relationship between workplace digitalisation and fear of job loss in European workplaces, with particular attention to the role of digital risk governance. Using data from the Fourth European Survey of Enterprises on New and Emerging Risks (ESENER 2024), covering 41,458 establishments across EU Member States, the study combines latent class analysis and weighted logistic regression models to identify distinct profiles of workplace digitalisation and assess their relationship with employment insecurity. In doing so, the paper contributes to emerging debates concerning the psychosocial implications of workplace digitalisation and the governance of digital transformation in contemporary organisations.

2. Literature Review

2.1 Workplace Digitalisation

Workplace digitalisation refers to the integration of digital technologies into organisational processes, work organisation, communication, and managerial practices (Brennen & Kreiss, 2016; Vial, 2019). Contemporary research increasingly conceptualises digitalisation not merely as the adoption of technological tools, but as a broader socio-technical transformation reshaping how work is coordinated, monitored, evaluated, and controlled within organisations (Jarrahi et al., 2021; Kellogg et al., 2020). In this perspective, digitalisation extends beyond traditional information and communication technologies and encompasses algorithmic management, AI-supported coordination systems, robotics, wearable devices, digital monitoring infrastructures, and data-driven decision-making mechanisms (Baiocco et al., 2022; Duggan et al., 2020).

These technologies increasingly intervene directly in managerial functions previously exercised by human supervisors, including task allocation, workflow optimisation, performance evaluation, scheduling, and behavioural monitoring. As a result, digitalisation alters not only operational processes, but also broader organisational structures, employment relations, and mechanisms of managerial control. Existing literature further emphasises that workplace digitalisation is multidimensional and heterogeneous, as organisations adopt different technological configurations associated with varying organisational and psychosocial implications (Palumbo & Cavallone, 2022; Ren & Chowdhury, 2025; Vial, 2019).

Several studies distinguish between augmentation-oriented forms of digitalisation, which support and complement employees' work, and automation-oriented forms, which substitute labour and intensify algorithmic coordination (Ren & Chowdhury, 2025). Research increasingly suggests that technologies directly involved in monitoring, coordinating, and evaluating work generate stronger psychosocial consequences than technologies primarily facilitating communication or information processing (Palumbo & Cavallone, 2022). In particular, algorithmic management and digital monitoring systems have been associated with intensified surveillance, reduced autonomy, increased work intensity, technostress, and changing power relations within organisations (Duggan et al., 2020; Kellogg et al., 2020). Consequently, workplace digitalisation is increasingly

understood not simply as technological modernisation, but as a transformation of organisational governance and labour control with important implications for worker well-being and employment security.

2.2 Fear of Job Loss

Fear of job loss refers to subjective perceptions of insecurity regarding the continuity and stability of employment (Greenhalgh & Rosenblatt, 1984; Sverke et al., 2002). Unlike objective employment insecurity, which relates to actual risks of unemployment or precarious employment conditions, subjective insecurity reflects employees' expectations and perceptions concerning potential job loss, organisational restructuring, or deterioration of employment conditions. Research consistently demonstrates that employment insecurity is associated with stress, lower job satisfaction, reduced organisational commitment, poorer mental health, and deteriorating well-being (Cheng & Chan, 2008; Sverke et al., 2002).

In the context of workplace digitalisation, fear of job loss has increasingly become linked to automation, AI substitution, changing skill requirements, intensified monitoring, and algorithmic management systems (Dengler & Gundert, 2021; Firk et al., 2023; Müller et al., 2021; Schwabe & Castellacci, 2020). A growing body of literature demonstrates that workers exposed to automation-oriented and algorithmically managed environments are more likely to perceive technological replaceability and employment insecurity (Coupé, 2019; Dengler & Gundert, 2021; Droste, 2020; Kozák et al., 2020; Müller et al., 2021).

Importantly, these concerns extend beyond direct technological substitution and reflect broader anxieties associated with changing forms of organisational control, work intensification, and uncertainty regarding future employability. Research further indicates that monitoring systems and algorithmic evaluation tools intensify perceptions of surveillance, uncertainty, technostress, and loss of control over work processes (Bicchi et al., 2024; Bisht et al., 2023; Firk et al., 2020; Palumbo & Cavallone, 2022). Consequently, fear of job loss increasingly emerges not only as a response to automation itself, but also as a broader psychosocial reaction to digitally mediated managerial control and the transformation of employment relations in increasingly data-driven workplaces.

2.3 Digital Risk Governance

The literature increasingly suggests that the consequences of workplace digitalisation depend not only on technological adoption itself, but also on how digital transformation processes are implemented and governed within organisations (Vial, 2019). In this context, digital risk governance refers to organisational practices aimed at identifying, managing, and mitigating psychosocial and employment-related risks associated with workplace digitalisation (Baiocco et al., 2022; EU-OSHA, 2022).

Existing research emphasises that organisational responses to digital transformation play an important role in shaping employees' perceptions of technological change and its implications for work and employment. In particular, studies identify employee consultation, communication regarding technological implementation, digital skills training, participation in transformation processes, and supportive leadership practices as potentially important governance mechanisms influencing employees' responses to digitalisation (Firk et al., 2020; Firk et al., 2023; Ren & Chowdhury, 2025; Topçuoğlu et al., 2023).

Research further suggests that employee voice and opportunities for digital upskilling may reduce insecurity, digital anxiety, and resistance to technological change while strengthening perceptions of organisational support, employability, and procedural fairness during organisational transformation. At the same time, the literature indicates that governance mechanisms may be particularly important in contexts characterised by algorithmic management and monitoring-intensive forms of digitalisation, where concerns regarding surveillance, autonomy, transparency, and employment security tend to be especially pronounced (Baiocco et al., 2022; Firk et al., 2023).

However, despite growing recognition of the importance of governance practices, empirical evidence remains relatively fragmented and inconclusive regarding their effectiveness in mitigating psychosocial risks associated with workplace digitalisation. Existing studies frequently focus on specific sectors, technologies, or organisational case studies, while comparatively little large-scale comparative evidence exists regarding whether organisational governance mechanisms meaningfully reduce employment insecurity in digitally transforming workplaces.

3. Methodology

The study draws on data from the Fourth European Survey of Enterprises on New and Emerging Risks (ESENER 2024), conducted by the European Agency for Safety and Health at Work (EU-OSHA). ESENER is a large-scale cross-national establishment survey examining occupational safety and health practices, psychosocial risks, and workplace digitalisation across EU Member States. The survey covers establishments with at least five employees across all major sectors. The unit of analysis is the establishment, and respondents are typically managers or OSH specialists responsible for OSH practices. The dataset includes 41,458 establishments, and all analyses apply survey weights to ensure representativeness.

The study adopts a multi-stage quantitative approach combining latent class analysis (LCA) and weighted logistic regression modelling to capture the multidimensional nature of workplace digitalisation. First, LCA was used to identify distinct digitalisation profiles based on patterns of technological adoption across establishments. Binary indicators representing the use of different workplace technologies served as manifest variables. Models with increasing numbers of classes were compared using the Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and average posterior probabilities. The final five-class solution was selected based on statistical fit and substantive interpretability, and establishments were assigned to the class with the highest posterior membership probability. In the second stage, weighted binary logistic regression models examined the relationship between digitalisation profiles and fear of job loss. Additional moderation models tested whether digital risk governance practices influence this relationship. All models controlled for establishment size, sector, and country effects.

Digitalisation profiles were constructed using seven binary indicators capturing the use of workplace technologies (Q310_1–Q310_7): personal computers and fixed workstations, laptops and mobile devices, collaborative robots, automated task allocation systems, employee monitoring systems, wearable devices, and AI-based systems supporting task execution. The final latent class analysis identified five distinct profiles ranging from low/basic digitalisation to advanced integrated and monitoring-intensive digitalisation. The dependent variable is fear of job loss (Q201_3), operationalised as a binary indicator capturing whether the establishment reports fear of job loss as a psychosocial risk affecting employees. Digital risk governance was operationalised as a synthetic additive index reflecting organisational practices related to managing risks associated with workplace digitalisation. The index includes: inclusion of digital technologies in workplace risk assessments (Q252_10), employee training related to digital technologies (Q355_7), and consultation with employees on health and safety impacts of digital technologies (Q314). As the internal consistency of the construct is modest (Cronbach's alpha = 0.49), it is treated as a synthetic governance index rather than a reflective latent construct.

Based on the literature on psychosocial risks and workplace digitalisation presented earlier, the following hypotheses were formulated:

> ***H1.*** *More advanced and monitoring-intensive forms of workplace digitalisation are associated with a higher likelihood of fear of job loss.*
>
> ***H2.*** *Organisations characterised by stronger digital risk governance practices report lower levels of fear of job loss.*
>
> ***H3.*** *Digital risk governance moderates the relationship between workplace digitalisation and fear of job loss, reducing the strength of this association in more digitally intensive workplaces.*

4. Results

4.1 Latent Class Analysis of Workplace Digitalisation

To identify distinct configurations of workplace digitalisation, latent class analysis (LCA) was conducted using seven binary indicators capturing the adoption of digital and algorithmic technologies in establishments (Q310_1–Q310_7). Models with increasing numbers of latent classes were compared using the Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and average posterior classification probabilities. The final model was selected based on both statistical fit and substantive interpretability of the identified classes.

Table 1: Latent class model fit statistics

Number of classes	AIC	BIC	Average maximum posterior probability
2	177,453.6	177,582.6	0.701
3	175,518.6	175,716.4	0.719
4	175,393.7	175,660.3	0.736
5	174,470.3	174,805.8	0.748
6	174,288.7	174,692.9	0.752

Source: Own development based on ESENER 2024 microdata.

The fit statistics indicated substantial improvement between the two- and five-class solutions. Although the six-class model produced slightly lower AIC values, the five-class solution was selected because it provided the best balance between statistical fit, classification quality, and substantive interpretability. The additional sixth class offered limited conceptual differentiation and produced a very small, unstable subgroup. The average maximum posterior probability of 0.748 indicates acceptable classification precision for exploratory organisational profiling.

Table 2: Conditional probabilities and characteristics of latent digitalisation profiles

Technology indicator	Class 1 Low/basic digitalisation	Class 2 Standard digital workplace	Class 3 AI/mobile digitalisation	Class 4 Monitoring/task-allocation profile	Class 5 Advanced integrated digitalisation
Fixed workstations	0.61	1.00	0.89	0.85	0.98
Mobile devices	0.60	0.98	0.99	0.92	1.00
Collaborative robots	0.01	0.03	0.11	0.10	0.40
Automated task allocation	0.03	0.04	0.01	0.39	0.73
Monitoring systems	0.02	0.04	0.08	0.39	0.57
Wearable devices	0.05	0.12	0.24	0.19	0.62
AI-based systems	0.02	0.02	0.35	0.16	0.55

Technology indicator	Class 1 Low/basic digitalisation	Class 2 Standard digital workplace	Class 3 AI/mobile digitalisation	Class 4 Monitoring/task-allocation profile	Class 5 Advanced integrated digitalisation
Weighted class share	15.6%	75.2%	2.0%	6.1%	1.1%

Source: Own development based on ESENER 2024 microdata.

The latent class analysis identified five distinct profiles of workplace digitalisation. The largest group, labelled standard digital workplace (75.2%), is characterised by widespread use of basic digital infrastructures, particularly fixed and mobile computing devices, but limited adoption of advanced algorithmic technologies. The low/basic digitalisation class (15.6%) shows comparatively limited use of all technologies. Three smaller but analytically important profiles represent more advanced forms of digitalisation. The AI/mobile digitalisation profile is characterised by relatively high adoption of AI-based systems and mobile technologies. The monitoring/task-allocation profile displays the strongest concentration of algorithmic coordination and employee monitoring systems. Finally, the advanced integrated digitalisation class combines high probabilities of adoption across nearly all advanced technologies, including AI systems, wearables, monitoring tools, collaborative robots, and automated task allocation systems. To assess the substantive relevance of these profiles, class-specific prevalence of fear of job loss and digital risk governance scores were calculated.

Table 3: Fear of job loss and digital risk governance across latent classes

Latent class	Fear of job loss	Mean digital risk governance score
Low/basic digitalisation	9.0%	1.21
Standard digital workplace	10.7%	1.53
AI/mobile digitalisation	14.4%	2.11
Monitoring/task-allocation profile	15.7%	1.86
Advanced integrated digitalisation	16.3%	2.32

Source: Own development based on ESENER 2024 microdata.

The results indicate a clear relationship between the intensity of workplace digitalisation and fear of job loss. Establishments characterised by advanced and monitoring-intensive digitalisation report substantially higher prevalence of employment insecurity than low-digitalisation workplaces. At the same time, more digitally intensive establishments tend to report stronger digital risk governance practices, particularly within the advanced integrated digitalisation profile. This suggests that governance practices are more common in technologically advanced organisations, although their protective role requires further examination through multivariate analysis.

4.2 Logistic Regression Analysis

To assess the relationship between workplace digitalisation and fear of job loss, weighted binary logistic regression models were estimated. Fear of job loss (Q201_3) was operationalised as a binary dependent variable. Latent digitalisation profiles served as the main explanatory variables, with the low/basic digitalisation profile used as the reference category. All models controlled for establishment size, sector, and country effects.

Table 4: Weighted logistic regression predicting fear of job loss

Predictor	B	OR	95% CI	p
Standard digital workplace	0.184	1.20	1.07–1.35	.002
AI/mobile digitalisation	0.384	1.47	1.13–1.91	.005
Monitoring/task-allocation profile	0.441	1.55	1.31–1.85	<.001
Advanced integrated digitalisation	0.532	1.70	1.23–2.36	.001
Digital risk governance index	-0.006	0.99	0.96–1.03	.755

Source: Own development based on ESENER 2024 microdata.

The regression results confirm that workplace digitalisation profiles are significantly associated with fear of job loss. Compared to low/basic digitalisation workplaces, establishments characterised by monitoring-intensive and advanced integrated digitalisation exhibit substantially higher likelihood of reporting employment insecurity. The strongest effect is observed for the advanced integrated digitalisation profile (OR = 1.70), followed by the monitoring/task-allocation profile (OR = 1.55). The findings indicate that fear of job loss is particularly associated with technologies linked to monitoring, coordination, and algorithmic control rather than workplace digitalisation in general. In contrast, the digital risk governance index does not show a statistically significant direct association with fear of job loss after controlling for structural factors.

4.3 Moderation Analysis

To examine whether digital risk governance moderates the relationship between workplace digitalisation and fear of job loss, interaction terms between latent digitalisation profiles and the digital risk governance index were introduced into the regression model.

Table 5: Moderation model: digitalisation profiles × digital risk governance

Predictor	B	OR	95% CI	p
Standard digital workplace	0.188	1.21	1.07–1.36	.002
AI/mobile digitalisation	0.477	1.61	1.20–2.16	.002
Monitoring/task-allocation profile	0.425	1.53	1.28–1.84	<.001
Advanced integrated digitalisation	0.517	1.68	1.07–2.62	.023
Digital risk governance index	-0.018	0.98	0.89–1.09	.730
Standard × Governance	0.012	1.01	0.91–1.13	.828
AI/mobile × Governance	-0.154	0.86	0.65–1.13	.275
Monitoring/task-allocation × Governance	0.069	1.07	0.91–1.27	.416
Advanced integrated × Governance	0.035	1.04	0.70–1.54	.865

Source: Own development based on ESENER 2024 microdata.

The moderation analysis does not provide evidence that digital risk governance significantly buffers the relationship between workplace digitalisation and fear of job loss. None of the interaction effects reach statistical significance after controlling for structural characteristics and applying survey weights.

The results provide strong support for H1, which assumed that more advanced and monitoring-intensive forms of workplace digitalisation are associated with higher likelihood of fear of job loss. Compared to low/basic digitalisation workplaces, all more advanced profiles exhibit significantly higher odds of reporting employment insecurity. The strongest effects are observed for the advanced integrated digitalisation profile (OR = 1.70; p = .001) and the monitoring/task-allocation profile (OR = 1.55; p < .001), followed by the AI/mobile digitalisation profile (OR = 1.47; p = .005). The standard digital workplace profile also shows a weaker but statistically significant effect (OR = 1.20; p = .002).

In contrast, H2 is not supported. Although the coefficient for the digital risk governance index is negative, the effect remains statistically non-significant in the fully controlled model (OR = 0.99; p = .755). Similarly, H3 is not supported, as none of the interaction terms between digitalisation profiles and the governance index reach statistical significance. Overall, the findings indicate that the organisational configuration and intensity of workplace digitalisation play a more important role in shaping fear of job loss than the governance practices examined in this study.

5. Discussion

The findings provide consistent evidence that workplace digitalisation is associated with increased fear of job loss across European establishments, although the strength of this relationship varies depending on the type and configuration of technologies adopted. In particular, monitoring-intensive and algorithmically coordinated forms of digitalisation are associated with the highest levels of employment insecurity. Establishments characterised by monitoring systems, automated task allocation, and advanced integrated digitalisation report significantly higher probabilities of fear of job loss than low/basic digitalisation workplaces, while more conventional forms of digitalisation exhibit weaker associations with insecurity.

These findings are consistent with previous research linking algorithmic management, digital monitoring, and automation-oriented technologies with psychosocial strain and perceptions of insecurity (Duggan et al., 2020; Kellogg et al., 2020; Palumbo & Cavallone, 2022). They particularly support studies arguing that technologies involved in monitoring, coordinating, and evaluating work generate stronger psychosocial consequences than technologies focused primarily on communication or operational support (Martinez-Balderrama et al., 2024; Ren & Chowdhury, 2025). The strong effects observed for monitoring/task-allocation and advanced integrated digitalisation profiles also align with research emphasising the role of algorithmic management in intensifying perceptions of surveillance, replaceability, and loss of control (Bisht et al., 2023; Bicchi et al., 2024).

More broadly, the results reinforce the argument that workplace digitalisation should be understood not only as technological substitution, but also as a transformation of organisational control and managerial coordination. The strongest associations are linked not to technologies automating production itself, but to technologies reshaping managerial functions such as monitoring, coordination, evaluation, and task allocation. This supports socio-technical and labour process perspectives suggesting that digital transformation increasingly operates through datafication, algorithmic coordination, and intensified managerial visibility (Jarrahi et al., 2021; Kellogg et al., 2020).

An important contribution of the study is the differentiation between digitalisation profiles. Existing research often treats workplace digitalisation as relatively homogeneous or focuses on isolated technologies. By applying latent class analysis, the study demonstrates that workplace digitalisation takes distinct organisational forms associated with different levels of psychosocial risk. Advanced and monitoring-intensive configurations are particularly strongly associated with fear of job loss, while lower-intensity and more conventional profiles produce substantially weaker effects. This suggests that the psychosocial implications of digitalisation depend not only on technological intensity, but also on how technologies are organisationally configured and embedded within managerial practices.

The findings regarding digital risk governance are more complex. Although descriptive results indicated higher governance scores in more digitally advanced establishments, the governance index did not significantly moderate the relationship between digitalisation profiles and fear of job loss. The results therefore provide no evidence that the presence of these governance practices, as measured in ESENER 2024, systematically buffers the association between workplace digitalisation and fear of job loss. Importantly, this null result should not be interpreted as evidence that digital risk governance is ineffective. In this respect, the findings only partially support literature emphasising the protective role of employee participation, communication, and training during digital transformation (Firk et al., 2020; Firk et al., 2023; Ren & Chowdhury, 2025).

Several explanations are possible. First, the index captures the presence of risk assessment, training, and consultation practices, but not their quality, intensity, timing, implementation or credibility to employees. Second, the three components represent different governance mechanisms whose effects may be heterogeneous and therefore partly obscured when combined in an additive index. Third, the higher governance scores observed in more digitally advanced establishments may indicate that governance practices are introduced reactively in response to greater technological exposure or perceived risks, rather than preceding them.

From a practical and policy perspective, the findings indicate that organisations and policymakers should pay greater attention to the psychosocial implications of monitoring-intensive and algorithmically coordinated work environments. Technologies associated with surveillance, automated task allocation, and AI-supported management appear particularly important in shaping employment insecurity. This points to the need for stronger organisational safeguards accompanying digital transformation, including transparent communication, meaningful employee participation, governance frameworks for digital monitoring, and broader integration of psychosocial risk assessment into digitalisation strategies.

Overall, the study highlights the importance of moving beyond simplistic interpretations of digital transformation as either inherently beneficial or harmful. The consequences of workplace digitalisation depend strongly on how technologies are organisationally embedded, governed, and connected to managerial control systems. Understanding these organisational configurations is therefore essential for assessing the broader implications of digital transformation for job quality and worker well-being.

6. Limitations and Future Research

Several limitations of the study should be acknowledged. First, the analysis is based on cross-sectional establishment-level data from ESENER 2024, which limits the ability to draw causal conclusions regarding the relationship between workplace digitalisation and fear of job loss. Although the findings demonstrate statistically significant associations, the directionality of these relationships cannot be definitively established. In addition, the study relies on organisational reporting provided primarily by managers or occupational safety and health specialists rather than individual employee perceptions. Consequently, the analysis may not fully capture subjective experiences of insecurity or differences between occupational groups, hierarchical levels, or categories of workers within establishments.

Second, the operationalisation of workplace digitalisation is based on the presence of specific technologies rather than their intensity, sophistication, or actual mode of use. Although the latent class approach enables identification of broader digitalisation profiles, it cannot fully capture qualitative differences in how technologies are implemented and embedded within managerial systems. Similarly, the digital risk governance index reflects selected governance practices related to digital risk assessment, consultation, and training, but does not encompass broader organisational dimensions such as leadership quality, organisational culture, trust, transparency, or collective representation structures. The relatively modest internal consistency of the governance construct further suggests that digital governance remains conceptually and organisationally fragmented across workplaces.

The findings point to several important directions for future research. Longitudinal studies are needed to examine how workplace digitalisation influences employment insecurity over time and whether governance mechanisms become more effective as organisations adapt to technological transformation. Future research should also investigate more specific mechanisms linking digitalisation to fear of job loss, including perceptions of replaceability, reduced autonomy, technological opacity, and intensified monitoring. In addition, greater attention should be devoted to sectoral, occupational, and institutional differences, particularly regarding how labour market institutions, collective bargaining systems, and organisational governance arrangements shape the psychosocial consequences of workplace digitalisation. Finally, the results highlight the need for more interdisciplinary approaches integrating perspectives from digital transformation, occupational safety and health, labour process theory, and organisational governance in order to better understand the changing relationship between technology, managerial control, and worker well-being.

Ethics Declaration: The study is based on secondary analysis of anonymised organisational-level data from the Fourth European Survey of Enterprises on New and Emerging Risks (ESENER 2024), conducted by the European Agency for Safety and Health at Work (EU-OSHA). The dataset does not contain personally identifiable information, and no direct involvement of human participants was undertaken by the author. Therefore, additional ethical approval was not required for the present study.

AI Declaration: Artificial intelligence tools were used during the preparation of the manuscript to support language editing and text refinement. All analytical procedures, interpretation of findings, methodological decisions, and final content were developed, verified, and approved by the author. The author takes full responsibility for the accuracy, originality, and integrity of the submitted manuscript.

References

Baiocco, S., Fernandez-Macías, E., Rani, U., & Pesole, A. (2022) The algorithmic management of work and its implications in different contexts (Background paper No. 9). *International Labour Organization & European Commission Joint Research Centre.* https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_emp/documents/publication/wcms_849220.pdf

Bicchi, N., Kuo, A., & Gallego, A. (2024) Unpacking Technological Risks: Different Sources of Concern and Policy Preferences. *Political Studies.* 73(3). https://doi.org/10.1177/00323217241281575

Bisht, N. S., Trusson, C. R., Siwale, J., & Ravishankar, M. (2023) Enhanced job satisfaction under tighter technological control: The paradoxical outcomes of digitalisation. *New Technology, Work and Employment.* 38, 162–184. https://doi.org/10.1111/ntwe.12222

Brennen, S., & Kreiss, D. (2016) Digitalization. In *The International Encyclopedia of Communication Theory and Philosophy*. Wiley. https://doi.org/10.1002/9781118766804.wbiect111

Cheng, G. H.-L., & Chan, D. K.-S. (2008) Who suffers more from job insecurity? A meta-analytic review. *Applied Psychology, 57*(2), 272–303. https://doi.org/10.1111/j.1464-0597.2007.00312.x

Coupé, T. (2019) Automation, job characteristics and job insecurity. *International Journal of Manpower, 40*(8), 1288–1304. https://doi.org/10.1108/IJM-12-2018-0418

Dengler, K., & Gundert, S. (2021) Digital transformation and subjective job insecurity in Germany. *European Sociological Review, 37*(4), 640–656. https://doi.org/10.1093/esr/jcaa066

Droste, L. (2020) Digitalisierung als Bedrohung für den eigenen Job? Ausmaß und Determinanten subjektiver Arbeitsplatzunsicherheit aufgrund von Digitalisierung bei Erwerbstätigen in Deutschland. https://doi.org/10.21241/SSOAR.67651

Duggan, J., Sherman, U., Carbery, R., & McDonnell, A. (2020). Algorithmic management and app-work in the gig economy: A research agenda for employment relations and HRM. *Human Resource Management Journal, 30*(1), 114–132. https://doi.org/10.1111/1748-8583.12258

European Agency for Safety and Health at Work (EU-OSHA). (2022) *Digital platform work and occupational safety and health: A review*. Publications Office of the European Union.

Firk, S., Gehrke, Y., & Wolff, M. (2020) Digital anxiety in the organization: Consequences and mitigating factors. *Academy of Management Proceedings, 2020*(1). https://doi.org/10.5465/AMBPP.2020.20365abstract

Firk, S., Gehrke, Y., & Wolff, M. (2023) Digital anxiety in the finance function: Consequences and mitigating factors. *Journal of Management Accounting Research, 35*(1), 47–73. https://doi.org/10.2308/JMAR-2021-056

Greenhalgh, L., & Rosenblatt, Z. (1984) Job insecurity: Toward conceptual clarity. *Academy of Management Review, 9*(3), 438–448. https://doi.org/10.5465/amr.1984.4279673

Jarrahi, M. H., Newlands, G., Lee, M. K., Wolf, C. T., Kinder, E., & Sutherland, W. (2021) Algorithmic management in a work context. *Big Data & Society, 8*(2), 1–14. https://doi.org/10.1177/20539517211020332

Kellogg, K. C., Valentine, M. A., & Christin, A. (2020) Algorithms at work: The new contested terrain of control. *Academy of Management Annals, 14*(1), 366–410. https://doi.org/10.5465/annals.2018.0174

Kozák, M., Kozák, S., Kozáková, A., & Martinák, D. (2020) Is Fear of Robots Stealing Jobs Haunting European Workers? A Multilevel Study of Automation Insecurity in the EU. *IFAC-PapersOnLine.* https://doi.org/10.1016/J.IFACOL.2020.12.2160

Martinez-Balderrama, R., Rodriguez-Urrea, M. D., García-Vázquez, J.-P., Mendoza-Muñoz, I., & Jacobo-Galicia, G. (2024). Psychosocial factors related to the increasing automation of work processes: A systematic review. *WPOM: Working Papers on Operations Management.* 15. https://doi.org/10.4995/wpom.21465

Müller, N., Stawarz, N., & Wicht, A. (2021). Who experiences subjective job insecurity due to digital transformation in Germany? *Soziale Welt, 72*(4), 384–412. https://doi.org/10.5771/0038-6073-2021-4-384

Palumbo, R., & Cavallone, M. (2022) Is work digitalization without risk? Unveiling the psycho-social hazards of digitalization in the education and healthcare workplace. *Technology Analysis & Strategic Management, 35*(10), 1236–1247. https://doi.org/10.1080/09537325.2022.2075338

Ren, S., & Chowdhury, S. (2025) Employee digital transformation experience towards automation versus augmentation: Implications for job attitudes. *Human Resource Management*. 64(5), 1359–1379. https://doi.org/10.1002/hrm.22313

Rodriguez-Bustelo, C., Batista-Foguet, J., & Serlavós, R. (2020) Debating the Future of Work: The Perception and Reaction of the Spanish Workforce to Digitization and Automation Technologies. *Frontiers in Psychology*. 11:1965. https://doi.org/10.3389/fpsyg.2020.01965

Schwabe, H., & Castellacci, F. (2020). Automation, workers' skills and job satisfaction. *PLoS ONE, 15*(11), e0242929. https://doi.org/10.1371/journal.pone.0242929

Sverke, M., Hellgren, J., & Näswall, K. (2002) No security: A meta-analysis and review of job insecurity and its consequences. *Journal of Occupational Health Psychology, 7*(3), 242–264. https://doi.org/10.1037/1076-8998.7.3.242

Topçuoğlu, E., Oktaysoy, O., Erdogan, S., Kaygin, E., & Karafakıoğlu, E. (2023) The mediating role of job security in the impact of digital leadership on job satisfaction and life satisfaction. *Marketing and Management of Innovations, 1*, 149–163. https://doi.org/10.21272/mmi.2023.1-11

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems, 28*(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003

Women Leaders in Public Administration Through Representative Bureaucracy Theory: An Integrative Review

Marisa Zikan da Silva, Solange Maria da Silva, Fernanda Matsukura Lindemeyer Pieri and Rayssa Nunes da Silva
Universidade Federal de Santa Catarina, Florianópolis, Brazil

marisazikan@gmail.com
solange.silva@ufsc.br
flindemeyer@gmail.com
rayssans@icloud.com

Abstract: The underrepresentation of women in leadership positions in public administration remains a global challenge, despite normative, legal and institutional advances. This article analyses how the presence of women leaders in the public sector has been addressed through representative bureaucracy theory. An integrative literature review was conducted following the PRISMA 2020 protocol, with searches conducted in Scopus and Web of Science databases. After identification, screening and eligibility stages, 20 articles published between 2000 and 2025 were included. The corpus was examined through thematic analysis and organised into five themes: forms of women's representation in bureaucracy; access, merit and organisational barriers to women's leadership; effects associated with women's presence in public leadership; intersectionality and diversity of experiences; and symbolic representation, public perception and institutional legitimacy. The findings show that passive representation is treated as a necessary but insufficient condition for active representation. The corpus also indicates a recent intensification of publications, a predominance of quantitative studies and a stronger focus on operational levels than on senior management. The conversion of women's numerical presence into substantive influence depends on discretion, role congruence, critical mass, institutional legitimacy and support networks, and is constrained by masculinised organisational cultures, informal patronage networks, ambiguous merit criteria and clientelist or politically dependent contexts. The review also shows that women's leadership is associated with relevant organisational and institutional effects, including more collaborative and inclusion-oriented management styles, greater attention to social policies, support for women-sensitive agendas, mitigation of gender pay disparities and more positive perceptions of organisational climate. Nevertheless, these effects are not automatic: they are moderated by hierarchical position, formal authority, internal legitimacy, organisational socialisation and the presence of allies. Intersectional findings indicate that women's trajectories are shaped by race, ethnicity, class, age, religion, motherhood and work–family responsibilities, producing cumulative disadvantages such as double glass ceilings, tokenism, isolation and invisible emotional labour. Symbolically, women leaders may strengthen public trust, institutional legitimacy and the perception that the state is plural and accessible; however, symbolic representation can also be weakened by tokenism, accusations of favouritism, resistance to quotas and the perception that diversity policies are externally imposed. The review identifies persistent gaps, especially the predominance of Global North settings, quantitative and cross-sectional designs, operational-level analyses and limited evidence on senior women leaders in the Global South, where recruitment, discretion and legitimacy may follow distinct institutional patterns. These findings reinforce the need to examine not only the number of women in public leadership, but also the institutional conditions that allow their presence to become substantive, legitimate and transformative.

Keywords: Women in leadership, Female leadership, Representative bureaucracy, Public administration, Integrative literature review

1. Introduction

The presence of women in leadership positions in public administration has increased in recent decades, driven by institutional reforms, equality policies and social pressures for diversity (Choi, 2011; Li, 2023; Moon and Lim, 2025). However, this progress remains uneven. Gender inequality tends to intensify at higher hierarchical levels, producing vertical segregation and restricting access to senior positions (Fitzpatrick and Richards, 2019; Piatak et al., 2022). Even in formally meritocratic bureaucracies, invisible barriers such as the glass ceiling continue to limit the conversion of women's numerical presence into decision-making power (Bermudez et al., 2022; Gram and Grøn, 2020).

This asymmetry is especially relevant in public organisations, where access to authority is linked not only to individual careers, but also to democratic legitimacy, administrative responsiveness and public trust (Andrews, 2024; Piatak et al., 2022). Representative bureaucracy theory offers a useful lens for analysing how the composition of the public workforce affects institutional performance and the state–society relationship (Choi, 2011; Dolan, 2000; Li, 2023). Nevertheless, research remains concentrated in Global North contexts and at operational levels of bureaucracy, with less attention to women leaders in senior decision-making roles and to countries in the Global South (Hassan and O'Mealia, 2020; Li, 2023).

This review is guided by the following research question: How does the literature analyse the presence of women in leadership positions in public administration in the light of representative bureaucracy theory, and what patterns of representation, determining factors and associated effects are identified? Accordingly, the article analyses how the literature addresses women in public leadership through this theoretical lens, identifying analytical patterns and theoretical, methodological and empirical gaps.

2. Conceptual Delimitations: Bureaucratic Representation and Female Leadership in the Public Sector

Representative bureaucracy theory challenges the classical view of public administration as a neutral and impersonal structure guided only by legal rationality and standardised procedures (Weber, 1946; Dolan, 2000). By treating bureaucracy as a social and political body, this perspective argues that the demographic composition of the public service has implications for state authority, policy implementation and citizens' perceptions of government.

Kingsley (1944) argues that bureaucracies reflect the values and interests of the groups from which their members are recruited. Thus, gender, race and class are not irrelevant attributes: they can influence priorities, interpretations and administrative decisions, particularly when public action involves distributive or symbolic consequences (Choi, 2011; Mosamim and Villeneuve, 2024). Mosher (1968) later systematised the distinction between passive and active representation. Passive representation refers to demographic correspondence between the bureaucracy and the population, whereas active representation concerns substantive action in defence of socially defined groups. Contemporary studies emphasise that this transition is contingent. Active representation is more likely when bureaucrats have discretion and when the issues at stake are connected to the groups they represent (Andrews, 2024; Dolan, 2000; Johnston and Houston, 2018).

The theory also includes a symbolic dimension. The presence of historically under-represented groups in state positions may affect legitimacy, trust and perceived proximity between the state and society, even when immediate policy changes are not evident (Hassan and O'Mealia, 2020; Trondal et al., 2015). Applied to gender and leadership, this perspective is strengthened by feminist organisational theory, which understands bureaucracies as gendered institutions whose routines, hierarchies and evaluation criteria have historically been organised around a masculine model of the ideal worker (Acker, 1990). Role congruity theory explains the tension between social expectations associated with femininity and traditional expectations of leadership (Eagly and Karau, 2002), while critical mass theory helps to explain why isolated women may have limited influence in male-dominated arenas (Kanter, 1977; Huang et al., 2025; Rouse, 2018). Therefore, analysing women in public leadership requires moving beyond headcounts and examining the conditions that enable diversity to become substantive influence and perceived legitimacy.

3. Methodological Procedures

This study adopts the integrative literature review method proposed by Whittemore and Knafl (2005), because it allows the synthesis of empirical and theoretical studies of different methodological designs. The protocol for conducting and reporting the review followed PRISMA 2020 recommendations, especially regarding transparency and traceability in the stages of search, selection, extraction and synthesis (Page et al., 2021). The process was organised into five stages: definition of the research question and eligibility criteria; development of the search strategy; study selection; data extraction; and thematic analysis.

The search was conducted in December 2025 in Scopus and Web of Science, selected for their interdisciplinary scope and relevance to Public Administration. The following Boolean string was used: ("representative bureaucracy" OR "bureaucratic representation" OR "passive representation" OR "active representation") AND ("public administration" OR "public sector" OR "government" OR "civil service" OR "public service") AND ("women" OR "female" OR "women leader*" OR "female leader*" OR "gender"). Filters were applied for document type (articles), language (English, Portuguese and Spanish) and access (full text available via open access). The initial search yielded 98 records: 18 from Scopus and 80 from Web of Science.

The selection followed staged screening. First, 11 duplicates were removed. The titles, abstracts and keywords of the remaining 87 records were then examined, resulting in the exclusion of 55 articles that did not fit the scope. The remaining 32 articles were read in full; 12 were excluded because they focused on non-state organisations or did not emphasise leadership or senior positions. The final corpus comprised 20 articles. Studies were included when they analysed representative bureaucracy in passive and/or active dimensions, investigated women in leadership or senior roles within public administration, and were situated in governmental

organisations. Studies centred on the private sector, the third sector, hybrid organisations, electoral representation or diversity without an explicit link to representative bureaucracy were excluded. The open-access criterion may have restricted coverage; this limitation is considered in the interpretation of the findings.

The screening was conducted independently by the authors, with discussion and consensus in cases of doubt. The selection flow is presented in Figure 1. For data extraction, a categorisation matrix was developed with information on authorship, year, context, objectives, methodological design, main findings and gaps. The synthesis was conducted through thematic analysis (Braun and Clarke, 2006), with a predominantly inductive approach. Although codes emerged from the corpus, interpretation was guided by the concepts of passive, active and symbolic representation. Five thematic categories resulted from this process: forms of female representation in the bureaucracy; access, merit and organisational barriers; effects associated with women in public leadership; intersectionality and diversity of experiences; and symbolic representation, public perception and institutional legitimacy.

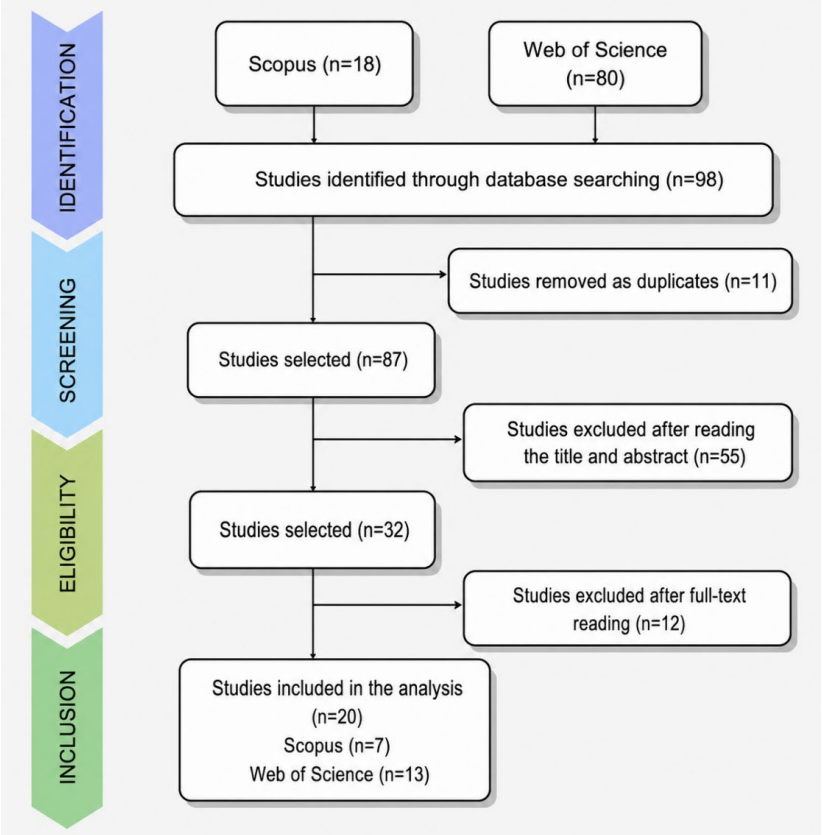


Figure 1: PRISMA flowchart, adapted

4. Results

The analysis of the 20 selected articles reveals a field with diverse geographical coverage, including studies conducted in Europe, North America, Asia and Africa. Even so, the distribution is asymmetrical, with a predominance of Global North contexts and limited evidence from the Global South. Empirical quantitative studies predominate (14 articles), while 6 adopt qualitative or mixed approaches, indicating a tendency to examine associations between demographic variables and organisational or institutional outcomes.

Publication is concentrated in the most recent period. Between 2000 and 2016, studies were sparse; from 2017 onwards, output intensified, and the period between 2018 and 2025 accounts for most of the corpus. The years 2024 and 2025 represent 20% of publications, confirming the current relevance of the debate on women, leadership and representative bureaucracy.

Thematic analysis identified five axes that structure the literature: (1) forms of female representation in bureaucracy; (2) access, merit and organisational barriers to women in leadership; (3) effects associated with women in public leadership; (4) intersectionality and diversity of experiences; and (5) symbolic representation, public perception and institutional legitimacy.

Figure 2 synthesises these themes and their analytical connections. Overall, the corpus favours quantitative approaches, focuses strongly on operational levels and offers fewer analyses of senior management and Global South settings. The results also reveal that the five themes are not isolated: barriers to access condition the possibility of active representation; intersectional markers shape women's experiences of authority; and symbolic legitimacy depends on whether women leaders are granted real decision-making space. Therefore, the synthesis indicates a field that has expanded empirically, but still requires stronger attention to the institutional mechanisms that connect presence, influence and legitimacy.

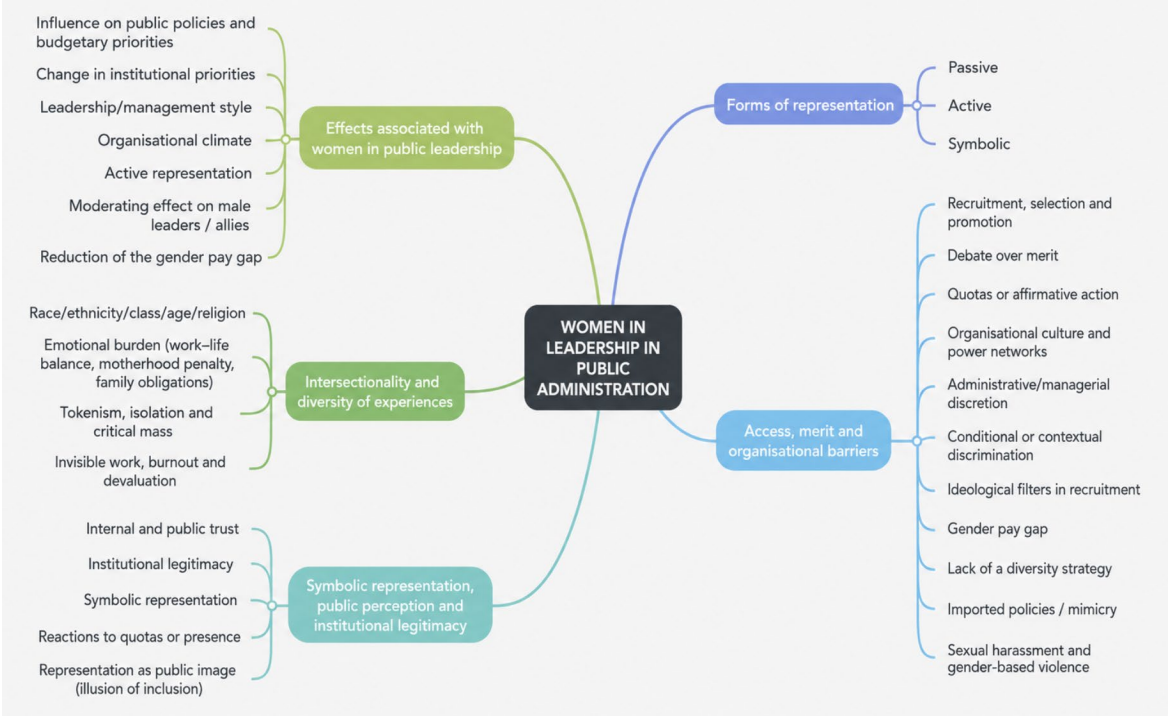


Figure 2: Thematic map

5. Discussion

5.1 Forms of Female Representation in the Bureaucracy

The analysed literature remains structured around the distinction between passive and active representation. Passive representation is usually operationalised as the numerical presence of women in bureaucracy and leadership. Recent studies, however, add indicators of vertical and horizontal segregation, showing that headcounts do not necessarily imply redistribution of decision-making power or change in institutional inequality regimes (Bermudez et al., 2022; Choi, 2011; Fitzpatrick and Richards, 2019; Mosamim and Villeneuve, 2024). Active representation is understood as the substantive promotion of women's interests, but the literature indicates that it depends on individual discretion, critical mass and favourable institutional conditions (Andrews, 2024; Dolan, 2000; Huang et al., 2025). Organisational socialisation and masculinised professional cultures may limit this conversion (Johnston and Houston, 2018; Trondal et al., 2015).

A third dimension, symbolic representation, also emerges. Women's presence may produce effects of gender congruence, legitimacy and organisational trust, even when direct substantive action is not immediately observable (Moon and Lim, 2025; Piatak et al., 2022). Nevertheless, the review identifies a scarcity of empirical models capable of measuring how passive, active and symbolic representation interact, reinforce or neutralise each other.

5.2 Access, Merit and Organisational Barriers to Women in Leadership

This is the most recurrent category in the corpus. The studies converge in showing that women's advancement to public leadership remains constrained by institutional and cultural mechanisms that reproduce gender inequality, even where meritocracy is formally adopted. Merit criteria often remain ambiguous, subjective and associated with masculine career paths, such as unrestricted availability, assertiveness and technical rationality (Foley et al., 2022; Rouse, 2018). Selective processes by exception and informal appointment practices can circumvent diversity rules and preserve male dominance in bureaucratic elites (Fitzpatrick and Richards, 2019).

Recruiters may tolerate atypical or risky profiles for men, while requiring linear and flawless trajectories from women (Gram and Grøn, 2020).

Masculinised organisational cultures and old boys' networks operate as exclusionary mechanisms. Women are frequently channelled into care-related or lower-status sectors and remain distant from strategic decision-making centres (Bermudez et al., 2022; Choi, 2011; Rouse, 2018). In public security, the literature describes a cult of masculinity in which women's acceptance may depend on assimilation to male norms (Johnston and Houston, 2018; Rutherford and Mee, 2022). Hostile environments, micro-sexism, silencing, sexual harassment and gender-based violence also appear as mechanisms that punish women who occupy or seek positions of power (Bermudez et al., 2022; Fitzpatrick and Richards, 2019; Mosamim and Villeneuve, 2024; Rutherford and Mee, 2022).

Role incongruence is another recurring barrier. Assertive women may be judged as aggressive, while communal leadership styles can be interpreted as evidence of limited authority (Piatak et al., 2022). Gender congruence between leader and subordinate may mitigate perceptions of inequality and increase support, mentoring and encouragement (Hatmaker and Hassan, 2023; Moon and Lim, 2025). Recruitment and promotion are also affected by ideological filters and gatekeeping. Evaluators' political orientation can shape perceptions of competence and representativeness (Baekgaard and George, 2018), while male elites who control appointments may replace transparent meritocratic processes with patronage and loyalty networks (Fitzpatrick and Richards, 2019; Huang et al., 2025; Rouse, 2018).

Wage inequality emerges as one outcome of these dynamics. Women remain concentrated in lower pay grades, and female presence at the top may mitigate disparities (Andrews, 2024; Choi, 2011; Moon and Lim, 2025). However, salary supplements, discretionary bonuses and the devaluation of feminised sectors reproduce inequalities (Bermudez et al., 2022). Institutional strategies to reduce under-representation vary. In Kenya, China, Nepal and Afghanistan, quotas or formal mandates have increased presence but may produce tokenism, selective implementation or resistance when oversight is weak and male networks remain dominant (Hassan and O'Mealia, 2020; Huang et al., 2025; Jamil and Baniamin, 2020; Mosamim and Villeneuve, 2024). In the United States, the United Kingdom, Australia, Hong Kong and Macau, non-mandatory affirmative action and diversity management tools predominate, but their effects remain vulnerable to organisational resistance, austerity and meritocratic rhetoric (Choi, 2011; Fitzpatrick and Richards, 2019; Foley et al., 2022; Li, 2023; Rutherford and Mee, 2022). The reviewed studies therefore show that formal inclusion instruments require monitoring and organisational legitimacy; otherwise, they may increase numerical presence without changing the informal rules that structure access to authority.

5.3 Effects Associated with Women in Public Leadership

The reviewed studies associate women in public leadership with substantive and symbolic effects, especially changes in organisational priorities, management styles and perceptions of support. Women's leadership is often described as more collaborative and inclusion-oriented, with greater attention to subordinates and organisational justice (Hatmaker and Hassan, 2023; Piatak et al., 2022). Diverse management teams may expand cognitive boundaries and make organisational environments more open to innovation (Huang et al., 2025).

Substantive effects appear when women leaders have discretion, critical mass and alignment between policy issues and institutional mission. The literature links women's leadership to greater responsiveness to social policies, including education, health, the environment and women-sensitive agendas (Dolan, 2000; Huang et al., 2025). Female representation on boards is also associated with reductions in the gender pay gap, suggesting an internal redistributive effect (Andrews, 2024). However, in patriarchal or unstable contexts, substantive action may be restricted. In Kenya, appointments may follow ethnic role congruence, while in Afghanistan women's representation has often remained symbolic and fragile (Hassan and O'Mealia, 2020; Mosamim and Villeneuve, 2024).

Group dynamics are central. Women can act as femocrats or critical actors, mobilising resources, mentoring other women and changing organisational culture from within, especially when more than one woman occupies senior management (Dolan, 2000; Fitzpatrick and Richards, 2019; Huang et al., 2025). Conversely, in male-dominated settings, socialisation may pressure women to assimilate masculine perspectives, reducing their willingness to challenge established norms (Johnston and Houston, 2018; Rouse, 2018; Rutherford and Mee, 2022). Political dependence and patronage networks may also limit autonomy, while formal written rules may be necessary to legitimate women's authority before male subordinates (Huang et al., 2025; Piatak et al., 2022). Thus, the effects of female leadership depend on internal legitimacy, discretion, allies, critical mass and

institutional protection (Andrews, 2024; Hatmaker and Hassan, 2023; Li, 2023). A further effect concerns the moderating and educational influence of women leaders on male peers and subordinates. The presence of women in boards, managerial teams or public safety units can broaden attention to equity, diversify leadership practices and create normative pressure for more inclusive conduct (Andrews, 2024; Huang et al., 2025; Rutherford and Mee, 2022).

5.4 Intersectionality and Diversity of Experiences in Public Leadership

The intersectional approach shows that gender alone does not explain the inequalities faced by women leaders. Race, ethnicity, class, age and religion interact with gender and generate cumulative disadvantages (Bermudez et al., 2022; Choi, 2011; Rouse, 2018). Age discrimination may affect selection processes for senior roles (Baekgaard and George, 2018). Women from racial, ethnic or religious minorities face additional barriers, including a double glass ceiling that keeps minority women more under-represented at the highest levels than white women or minority men (Choi, 2011). In Global South contexts, caste, ethnicity, region and conflict-related hierarchies mediate access to strategic positions (Hassan and O'Mealia, 2020; Jamil and Baniamin, 2020; Rouse, 2018).

At the same time, several studies still treat "women" as a homogeneous category, which obscures the specific barriers experienced by marginalised women and reduces the explanatory power of the analyses. The literature also highlights the emotional and symbolic costs of leadership. Motherhood and unequal family responsibilities affect progression, as women with children may be perceived as less available or committed (Foley et al., 2022). In Denmark, men reach executive positions faster than women in high-prestige central-government careers, a difference linked to family-related interruptions (Gram and Grøn, 2020). Work–life balance measures may legally exist, but can produce professional and salary penalties (Bermudez et al., 2022). Tokenism, isolation, hypervisibility and pressure to conform to masculine norms are recurrent in public safety and senior administration (Dolan, 2000; Fitzpatrick and Richards, 2019; Rutherford and Mee, 2022). Women leaders also perform invisible emotional labour, such as conflict mediation and psychological support, which is rarely recognised in merit systems and may contribute to burnout and demoralisation (Bermudez et al., 2022; Moon and Lim, 2025).

5.5 Symbolic Representation, Public Perception and Institutional Legitimacy

The studies indicate that women in positions of authority may increase public and internal trust by signalling that the state is accessible, plural and inclusive (Moon and Lim, 2025; Trondal et al., 2015). Symbolic representation can reinforce democratic legitimacy and perceptions of justice, particularly where bureaucracy must reflect the diversity of the population to secure acceptance of decisions (Jamil and Baniamin, 2020; Trondal et al., 2015). In transition democracies and post-colonial contexts, women's presence in senior positions may be perceived as a sign of administrative modernisation and political inclusion (Jamil and Baniamin, 2020; Li, 2023; Mosamim and Villeneuve, 2024). In public security, women's presence can encourage reporting of gender-based violence, although structural barriers limit this potential (Rutherford and Mee, 2022).

Symbolic representation, however, is not automatically positive. In hostile or culturally resistant contexts, women's inclusion may be perceived as artificial, externally imposed or illegitimate. This appears in Afghanistan, where imported policies were undermined by political instability, and in Kenya, where managers may avoid appointing women to frontline positions when female authority is seen as incongruent with local expectations (Hassan and O'Mealia, 2020; Mosamim and Villeneuve, 2024). Symbolic presence without real decision-making power may also mask exclusionary structures, creating an illusion of inclusion (Rouse, 2018). Moreover, quotas and affirmative action may be framed as threats to meritocracy, stigmatising women's careers and undermining legitimacy (Fitzpatrick and Richards, 2019; Foley et al., 2022; Jamil and Baniamin, 2020). Overall, symbolic effects depend on women's capacity to exercise real influence and on institutional contexts that recognise their authority (Huang et al., 2025; Piatak et al., 2022).

6. Concluding Remarks

This study analysed how the literature addresses women in leadership positions in public administration through representative bureaucracy theory. The integrative review shows that women's presence in public leadership has expanded, but its conversion into active representation remains conditioned by institutional, cultural and symbolic factors. The findings reinforce that passive representation is necessary but insufficient: substantive influence depends on discretion, critical mass, legitimacy, organisational support and access to strategic networks.

The review also indicates that the literature has advanced by incorporating symbolic representation, role congruence and intersectionality, moving beyond a strict passive–active dichotomy (Hassan and O'Mealia, 2020; Moon and Lim, 2025). However, evidence remains geographically and methodologically concentrated. Studies are predominantly located in the Global North, often quantitative and cross-sectional, and frequently focused on operational levels. There is still limited knowledge about women at the top of administrative hierarchies, where disputes over legitimacy, strategic resources, political dependence and control of agendas are more intense (Fitzpatrick and Richards, 2019; Gram and Grøn, 2020; Huang et al., 2025; Trondal et al., 2015). This gap is especially relevant for Global South contexts, where institutional fragility, patrimonialism, colonial legacies and centre–periphery dynamics may shape representation in different ways (Hassan and O'Mealia, 2020; Li, 2023; Mosamim and Villeneuve, 2024).

Methodologically, future research should deepen qualitative, longitudinal and comparative approaches capable of explaining how representation operates in everyday organisational life, including authority relations, informal coalitions, discretionary practices and forms of resistance or support for women leaders. More data disaggregated by race, ethnicity, class, age and religion are also necessary to understand intragroup inequalities among women leaders and the combinations of social markers that shape access, progression and retention (Rouse, 2018; Rutherford and Mee, 2022).

The review has limitations. The search was restricted to Scopus and Web of Science and to full-text articles available through open access, which may have reduced the diversity of the corpus and under-represented non-open-access journals. Thematic analysis also involved interpretative decisions, although these were theoretically grounded and discussed among the authors.

Despite these limitations, the findings have implications for public management. Increasing the number of women in leadership is important, but insufficient without institutional conditions that allow authority to be exercised. Diversity policies should be combined with clear targets, monitoring, transparent recruitment and promotion criteria, formal protection of women leaders' authority and organisational cultures that reduce tokenism, harassment and meritocratic stigma. These measures are relevant because the review suggests that the same institutional arrangements that formally promote inclusion can also neutralise it when appointments are symbolic, isolated or dependent on male patronage networks.

By systematising this evidence, the study contributes to debates on how public administration can address gender inequalities through bureaucratic arrangements and offers directions for future research on leadership, representation and organisational behaviour in the public sector.

Acknowledgements

This work was carried out with the support of the Coordination for the Improvement of Higher Education Personnel – Brazil (CAPES) – Funding Code 001.

Ethics Declaration: Ethical clearance was not required for this research, as it is an integrative literature review based on previously published and publicly available studies, and did not involve primary data collection from human subjects or animals.

AI Declaration: Artificial intelligence tools were used exclusively as instrumental support for preliminary screening (initial organisation of records), textual systematisation (preliminary structuring of topics), and final spell-checking. All decisions regarding inclusion and exclusion criteria, the final definition of codes and themes, as well as the analytical interpretation of the results, were carried out solely by the authors, preserving the intellectual responsibility and scientific integrity of the research.

References

Acker, J. (1990) "Hierarchies, jobs, bodies: A theory of gendered organisations", *Gender and Society,* Vol 4, No. 2, pp. 139–158. doi:10.1177/089124390004002002.

Andrews, R. (2024) "Social equity in municipally owned corporations: Do women in the boardroom make a difference to the prioritisation of diversity?", *Public Management Review,* Vol 26, No. 2, pp. 319–342. doi:10.1080/14719037.2023.2193963.

Baekgaard, M. and George, B. (2018) "Equal access to the top? Representative bureaucracy and bureaucratic ambition in the public sector", *Public Administration Review,* Vol 78, No. 3, pp. 373–384. doi:10.1111/puar.12920.

Bermudez, A., Molenaar, B. and Eklund, L. (2022) "Gender labour inequalities in public sector employment: Evidence from health and education", *International Journal of Public Administration,* Vol 45, No. 10, pp. 737–748. doi:10.1080/01900692.2021.1953275.

Braun, V. and Clarke, V. (2006) "Using thematic analysis in psychology", *Qualitative Research in Psychology,* Vol 3, No. 2, pp. 77–101. doi:10.1191/1478088706qp063oa.

Choi, S. O. (2011) "Diversity and representation in the U.S. federal government: Analysis of the trends of federal employment", *Public Personnel Management,* Vol 40, No. 1, pp. 25–47. doi:10.1177/009102601104000102.

Dolan, J. (2000) "Representative bureaucracy in the federal executive: Gender and spending priorities", *Journal of Public Administration Research and Theory,* Vol 10, No. 3, pp. 513–530. doi:10.1093/oxfordjournals.jpart.a024276.

Eagly, A. H. and Karau, S. J. (2002) "Role congruity theory of prejudice toward female leaders", *Psychological Review, 109*(3), pp. 573–598. doi:10.1037/0033-295X.109.3.573.

Fitzpatrick, J. and Richards, D. (2019) "The civil service's gender diversity agenda: How effective has it been?", *Public Policy and Administration,* Vol, 34, No. 4, pp. 344–364. doi:10.1177/0952076718796114.

Foley, M., Cooper, R. and Mosseri, S. (2022) "Best person or best mix? How public sector managers understand the merit principle", *Public Administration Review,* Vol 82, No. 4, pp. 594–606. doi:10.1111/puar.13483.

Gram, K. and Grøn, C. H. (2020) "One of the boys? The inclusion and exclusion of female police officers in Denmark", *Policing and Society,* Vol 30, No. 5, pp. 469–483. doi:10.1080/10439463.2019.1609867.

Hassan, M. and O'Mealia, T. (2020) "Representative bureaucracy, role congruence, and Kenya's gender quota", *Governance,* Vol 33, No. 4, pp. 809–827. doi:10.1111/gove.12480.

Hatmaker, D. M. and Hassan, S. (2023) "When do women receive managerial support? The effects of gender congruence and the manager–employee relationship", *Public Management Review,* Vol 25, No. 9, pp. 1357–1383. doi:10.1080/14719037.2021.1937683.

Huang, Y., Moon, S. and Choi, S. O. (2025) "From presence to policy: Examining conditions for active representation in Chinese local governments", *Public Administration Review*, Advance online publication. doi:10.1111/puar.14113.

Kanter, R. M. (1977) Men and women of the corporation, Basic Books, New York.

Jamil, I. and Baniamin, H. M. (2020) "Representative and responsive bureaucracy in new democracies: An analysis of the Nepalese bureaucracy", *International Review of Administrative Sciences*, Vol 86, No. 4, pp. 667–685. doi:10.1177/0020852318761779.

Johnston, J. M. and Houston, D. J. (2018) "Gendered organisations: Implications for passive and active representation in public organisations", *Public Administration Review*, Vol 78, No. 3, pp. 362–372. doi:10.1111/puar.12892.

Li, W. (2023) "Expanding the analytical scope of tools for advancing representative bureaucracy: A comparative analysis of Hong Kong and Macau", *International Public Management Journal*, Advance online publication. doi:10.1080/10967494.2023.2175079.

Kingsley, J. D. (1944) Representative bureaucracy: An interpretation of the British civil service, Antioch Press, Ann Arbor.

Moon, S. and Lim, H. (2025) "Gender and gender inequalities: Elucidating the role of women's representation in public sector performance", *Public Management Review*, Advance online publication. doi:10.1080/14719037.2023.2266359.

Mosamim, S. and Villeneuve, M. (2024) "75 years of women's representation in Afghanistan: Looking back to look forward", *Gender, Work and Organization*, Vol 31, No. 1, pp. 4–22. doi:10.1111/gwao.12997.

Mosher, F. C. (1968) Democracy and the public service, Oxford University Press, Oxford.

Page, M. J., et al. (2021) "The PRISMA 2020 statement: An updated guideline for reporting systematic reviews", *BMJ,* Vol 372, No. 71. doi:10.1136/bmj.n71.

Piatak, J., Yang, K. and Pitts, D. W. (2022) "The role of gender in government: How women in the public workforce influence perceptions of government", *Public Administration Review*, Vol 82, No. 1, pp. 64–77. doi:10.1111/puar.13425.

Rouse, S. M. (2018) "Gendering the institutional legacies of the Northern Ireland senior civil service", *Public Administration*, Vol 96, No. 2, pp. 276–291. doi:10.1111/padm.12392.

Rutherford, A. and Mee, A. (2022) "What explains variation in representation in public sector organisations?", *Public Administration*, Vol 100, No. 2, pp. 427–443. doi:10.1111/padm.12751.

Trondal, J., Murdoch, Z. and Geys, B. (2015) "Representative bureaucracy and the role of expertise in politics", *Politics and Governance*, Vol 3, No. 1, pp. 26–36. doi:10.17645/pag.v3i1.65.

Whittemore, R. and Knafl, K. (2005) "The integrative review: Updated methodology", *Journal of Advanced Nursing, Vol 52,* No. 5, pp. 546–553. doi:10.1111/j.1365-2648.2005.03621.x.

Social Innovation and Public Sector Performance: The Mediating Role of Social Cohesion and Digital Inclusion

Mihaela Sima and Maria Antonela Dima
National University of Political Studies and Public Administration, Bucharest, Romania

sima.mihaela21@yahoo.com
antonela.dima.24@drd.snspa.ro

Abstract: Social innovation is increasingly recognised as a key driver of transformation in the public sector, particularly in addressing complex social challenges and improving the delivery of public services. However, the mechanisms through which social innovation generates a measurable and sustainable impact on public sector performance remain insufficiently understood. This paper examines the role of social cohesion and digital inclusion as mediating mechanisms between social innovation initiatives and improvements in public sector performance. It argues that the effects of social innovation are neither direct nor uniform, but are shaped by institutional and societal conditions that influence how innovative interventions are translated into outcomes. Drawing on the literature on social innovation and public governance, the study conceptualises impact as observable and relevant changes in the accessibility, efficiency, quality and equity of public services. The analytical framework is structured around a conceptual model that links social innovation initiatives to public sector performance through two principal mediators: social cohesion, understood in terms of civic participation, social capital and institutional trust; and digital inclusion, defined through access, skills and the meaningful use of digital public services. Methodologically, the study adopts a conceptual, analytical-interpretative approach focused on analysing institutional developments and the policy framework relevant to social innovation. The approach integrates a critical review of the literature with an examination of the governance framework and public policies, supporting the theoretical development of the proposed conceptual model. Through an analytical-interpretative perspective, the study seeks to identify the mechanisms through which social innovation is integrated into institutional processes and how these may shape outcomes at the public sector level, while also highlighting contextual variations and their dynamics. The proposed conceptual model suggests that social innovation may generate stronger and more sustainable impacts in contexts characterised by high levels of social cohesion and digital inclusion. Conversely, limited institutional capacity and restricted access to digital resources may constrain the effectiveness of innovative interventions. The contribution of the paper lies in developing a mechanism-based perspective on the impact of social innovation, shifting the focus from descriptions of innovation to the identification of the conditions under which it produces meaningful change. This perspective offers important implications for the design, scaling and institutionalisation of social innovation within the public sector.

Keywords: Social innovation, Public sector performance, Social cohesion, Digital inclusion, Public policy

1. Introduction

The increasing complexity of contemporary societal challenges has intensified the need for innovative approaches in public administration. Demographic changes, digital transformation, growing social inequalities, the green transition, and the pressures generated by multiple economic and social crises have highlighted the limitations of traditional governance models and administrative mechanisms based predominantly on state intervention. In this context, innovation has become central to institutional modernisation and strengthening the capacity of public administrations to respond to increasingly complex problems.

At the European level, the importance of innovation is reflected in recent strategic documents that regard it as a determining factor for competitiveness, resilience, and citizens' well-being. The New European Innovation Agenda emphasises that innovation is essential for strengthening Europe's competitiveness and ensuring the health and well-being of its citizens (European Commission, 2022). Similarly, the report Science, Research and Innovation Performance of the EU 2024 highlights the role of innovation ecosystems and collaboration among public, private, and civic actors in generating sustainable solutions to contemporary challenges (European Commission, 2024).

Within this evolution, social innovation has become one of the most dynamic and influential components of debates concerning the transformation of the public sector. Unlike traditional forms of innovation, predominantly associated with technological progress and economic competitiveness, social innovation simultaneously seeks to meet social needs and develop new collaborative relationships among individuals, organisations, and institutions. Murray, Caulier-Grice and Mulgan (2010) define social innovation as "new ideas (products, services and models) that simultaneously meet social needs and create new social relationships or collaborations". This definition highlights the dual character of social innovation, which generates both social value and institutional transformation.

Interest in social innovation has increased significantly over the past two decades. Nevertheless, the literature highlights that the term remains contested and characterised by considerable diversity in interpretation. Ayob, Teasdale and Fagan (2016) show that social innovation has developed as a concept influenced by different theoretical traditions and ideological orientations, which explains the absence of a universally accepted definition. Similarly, Rüede and Lurtz (2012) identify multiple meanings and uses of the concept, demonstrating that social innovation may be understood both as a process of social change and as an instrument of economic, community, or institutional development.

Alongside the development of the academic literature, European institutions and international organisations have begun to integrate social innovation into strategies and public policies. The report Empowering People, Driving Change, prepared by the Bureau of European Policy Advisers (BEPA) of the European Commission, considers social innovation to be a mechanism capable of generating effective responses to social problems that can no longer be adequately addressed through traditional state instruments (BEPA, 2011).

At the same time, innovation has also become a strategic priority for public administration. The Organisation for Economic Co-operation and Development defines innovation in the public sector as "the implementation of something new in a given context in order to generate impact" (OECD, 2019). This perspective reflects an important paradigm shift through which innovation is no longer viewed as an isolated project, but rather as an institutional capacity necessary for the continuous adaptation of public organisations to changes in the economic and social environment.

In Romania, these developments are particularly relevant. In recent years, the process of administrative modernisation has been supported through the development of strategic documents that explicitly promote social innovation and innovation in the public sector. The National Strategy for Social Innovation 2026–2034 aims to develop a national social innovation ecosystem through strengthening competencies, developing impact measurement mechanisms, and stimulating collaboration among relevant actors.

However, despite the growing interest in social innovation, the mechanisms through which it contributes to improving public sector performance remain insufficiently explained. Much of the literature describes innovative initiatives and their outcomes, without systematically analysing the conditions that facilitate or constrain the transformation of public sector innovation into sustainable institutional outcomes.

Against this background, the study analyses the relationship between social innovation and public sector performance through a mechanism-based perspective. The paper argues that the impact of social innovation is neither direct nor uniform but is, rather, mediated by a series of social and institutional conditions that influence the capacity of actors to adopt, implement, and expand innovative solutions within the public sector. In particular, the research focuses on two mediating mechanisms: social cohesion and digital inclusion.

Within the study, social cohesion is analysed through the lens of civic participation, social capital, and institutional trust, while digital inclusion is conceptualised in terms of access to technology, digital skills, and the extensive use of digital public services. Public sector performance is defined as the ability of public institutions to generate public value through accessible, efficient, high-quality, and equitable services.

Methodologically, the study adopts a conceptual approach based on the critical and interpretative analysis of the academic literature and relevant public policy documents at European and national levels. This approach is oriented towards theoretical construction and the analysis of relationships between the main constructs of the study (Adèr and Mellenbergh, 1999). By integrating perspectives developed in the literature on social innovation, public governance and digital transformation, the study aims to develop a conceptual model that explains how social innovation may contribute to public sector performance in Romania through the theoretical mechanisms examined. The relationships proposed within the model are conceptual in nature and provide a basis for subsequent empirical testing.

2. Theoretical Foundations of Social Innovation and Public Sector Performance

2.1 Social Innovation: Conceptual Development and Contemporary Perspectives

Although social innovation has developed substantially over the past two decades, its origins lie in debates on social change, community development, and institutional transformation.

One of the aspects most frequently highlighted in the literature is the ambiguous and multidimensional nature of the concept. Ayob, Teasdale and Fagan (2016) argue that social innovation constitutes a "contested concept", the meanings of which have been shaped by different theoretical traditions and ideological

orientations (Ayob et al., 2016). Similarly, Rüede and Lurtz (2012) identify seven distinct categories of interpretation of social innovation, demonstrating that it may be associated both with social change and with social entrepreneurship, community development, or organisational innovation (Rüede & Lurtz, 2012).

Despite this conceptual diversity, one of the most influential definitions is that proposed by Murray, Caulier-Grice and Mulgan (2010), according to whom social innovation represents "new ideas (products, services and models) that simultaneously meet social needs and create new social relationships or collaborations" (Murray et al., 2010). This definition is particularly relevant because it captures the dual character of social innovation. On the one hand, it seeks to address social needs that are insufficiently met through existing mechanisms. On the other hand, it generates new forms of cooperation, participation, and collaboration among the actors involved.

The importance of the relational dimension of social innovation is also highlighted in the report Empowering People, Driving Change, prepared by the Bureau of European Policy Advisers of the European Commission. The report argues that social innovation emerges in situations where the traditional instruments of the state and the market are no longer able to respond adequately to social challenges and that the development of effective solutions requires the active involvement of citizens, communities, and civil society organisations (BEPA, 2011).

An important contribution to strengthening the theoretical foundations of the field is provided by the European SI-DRIVE project. Unlike approaches focused exclusively on products or services, SI-DRIVE conceptualises social innovation as a process of transforming social practices. From this perspective, social change results not merely from the introduction of an innovative solution, but from the modification of the relationships, rules, and mechanisms that structure interactions among actors (Howaldt et al., 2014; Howaldt et al., 2017).

Examining the evolution of the concept, a gradual transition can be observed from a perspective centred on social change to one oriented towards governance and institutional development. While earlier approaches emphasised the capacity of communities to generate new forms of organisation and cooperation, contemporary approaches integrate social innovation into complex ecosystems that bring together public administration, academia, the private sector, and civil society. This evolution explains why social innovation is now considered a relevant instrument for modernising the public sector and enhancing institutional performance.

2.2 Innovation in the Public Sector and the Creation of Public Value

The Organisation for Economic Co-operation and Development defines innovation in the public sector as "the implementation of something novel to a context in order to achieve impact" (OECD, 2019). This approach shifts the emphasis from novelty to impact. Thus, innovation does not constitute an end in itself, but rather an instrument intended to produce observable improvements in institutional and social outcomes.

The OECD approach marks a departure from traditional administrative models. Rather than being viewed as an exceptional activity or a one-off project, innovation is conceptualised as an organisational capability that must be integrated into the day-to-day functioning of public institutions. The Observatory of Public Sector Innovation (OPSI) supports this perspective, arguing that public administrations must develop organisational cultures oriented towards learning, experimentation, and collaboration, capable of sustaining continuous processes of adaptation and transformation.

Building on the literature reviewed and the public policy documents presented above, the present study conceptualises public sector performance through four principal dimensions: accessibility, which reflects citizens' ability to make effective use of public services; efficiency, which concerns the relationship between the resources utilised and the results achieved; quality, which expresses the extent to which services meet the needs and expectations of beneficiaries; and equity, which refers to equal access to services and opportunities for all social groups.

This perspective marks a shift from an approach centred on individual projects to one based on ecosystems, networks, and co-creation processes. Consequently, the success of innovation increasingly depends on the capacity of actors to cooperate and to integrate resources and knowledge derived from diverse sources.

3. The Evolution and Institutionalisation of Social Innovation in the European and National Context

3.1 Romania's Transition: From Policy Adoption to the Institutionalisation of Social Innovation

In Romania, the evolution of the concept can be observed through two recently adopted documents: the National Strategy for Social Innovation 2026–2034 and the National Strategy on Innovation in the Public Sector 2026–2030.

The National Strategy for Social Innovation aims to develop a national social innovation ecosystem through strengthening competencies, facilitating access to funding, developing mechanisms for measuring social impact, and promoting collaboration among relevant actors.

In parallel, the National Strategy on Innovation in the Public Sector promotes the development of a modern, citizen-oriented administration capable of using innovation to improve institutional performance. The document explicitly introduces the quadruple helix model, defined as a collaborative structure involving public administration, academia, the private sector, and civil society.

Romania is currently in a stage of institutionalising social innovation, in which the emphasis is no longer placed exclusively on individual initiatives or isolated projects, but on the development of mechanisms and structures capable of supporting innovation as a continuous process of institutional transformation.

Initially associated with general processes of social change and community development, social innovation gradually became a public policy instrument, subsequently a mechanism of institutional transformation, and is currently a central component of innovation ecosystems and collaborative governance.

This evolution may be summarised as follows:

Period	Dominant Perspective	Main Objective
Before 2000	Social change	Transformation of communities
2000–2010	Response to social needs	Addressing social problems
2010–2020	Collaborative governance	Participation and co-creation
2020–present	Ecosystems and impact	Public sector performance and institutional resilience

4. Conceptual Framework of the Relationship between Social Innovation and Public Sector Performance

4.1 Collaborative Governance as an Institutional Transmission Mechanism

The analysis of the literature and strategic documents highlights that social innovation produces sustainable effects only when it is integrated into collaborative governance structures. The introduction of new ideas is not sufficient to generate institutional change if there are no mechanisms that facilitate cooperation among the actors involved.

The concept of collaborative governance describes the processes through which public and non-public actors jointly participate in the design, implementation, and evaluation of public policies. Unlike hierarchical administrative models, collaborative governance involves the sharing of responsibilities and the integration of knowledge derived from multiple sources.

In the contemporary literature, this approach is frequently associated with the quadruple helix model, which promotes collaboration among public administration, academia, the private sector, and civil society. The National Strategy on Innovation in the Public Sector 2026–2030 explicitly adopts this logic and defines the model as a mechanism for stimulating innovation and creating public value.

From this perspective, collaborative governance may be interpreted as an institutional transmission mechanism through which innovative ideas are transformed into administrative and social outcomes. It facilitates knowledge exchange, resource mobilisation, and the development of solutions that are better adapted to citizens' needs.

4.2 Social Cohesion as a Mediating Mechanism

The first mediating mechanism examined within the model is social cohesion.

The literature on social innovation and community development highlights that civic participation, social capital, and institutional trust significantly influence the capacity of communities to adopt and sustain innovative processes. Communities characterised by strong social relationships and high levels of trust are more capable of mobilising resources and sustaining long-term collaborative processes.

Within the proposed model, social cohesion contributes to:

- increasing the legitimacy of public initiatives;
- facilitating cooperation among actors;
- reducing resistance to change;
- strengthening collective problem-solving capacity.

The importance of this mechanism is supported both by the literature on social capital and by European documents relating to cohesion and inclusion. Furthermore, the SI-DRIVE project highlights that the transformation of social practices and the development of new forms of collaboration constitute essential elements of social innovation.

In Romania, the relevance of social cohesion is amplified by the existence of persistent territorial and social disparities. Differences between urban and rural areas, varying levels of civic participation, and deficits in institutional trust may significantly influence the capacity of communities to participate in innovation processes and collaborative governance.

Based on these arguments, the study formulates the following theoretical proposition:

Proposition 1. Social cohesion positively mediates the relationship between social innovation and public sector performance.

4.3 Digital Inclusion as a Facilitating and Mediating Mechanism

The second mechanism examined is digital inclusion.

Digital transformation represents one of the principal priorities of both European and Romanian public administration. The development of electronic services, the use of data, and the automation of administrative processes are regarded as essential elements of public sector modernisation.

However, the literature and public policy documents highlight that access to technology does not automatically guarantee the effective use of digital services. The benefits of digital transformation depend on citizens' capacity to access and effectively use these services.

From this perspective, digital inclusion encompasses:

- access to digital infrastructure;
- digital skills;
- meaningful use of digital public services.

This approach is reflected both in European initiatives relating to the Digital Decade and in the National Strategy on Innovation in the Public Sector 2026–2030.

For Romania, the importance of digital inclusion is amplified by the persistence of disparities between urban and rural areas and differences in levels of digital skills. These disparities may limit the impact of technology-based innovative initiatives and may reduce the accessibility of digital public services for certain categories of citizens.

Consequently, digital inclusion should be interpreted not merely as an outcome of digitalisation, but as a condition that facilitates the realisation of the potential of social innovation.

Based on these arguments, the study formulates the following theoretical proposition:

Proposition 2. Digital inclusion positively mediates the relationship between social innovation and public sector performance.

4.4 Public Sector Performance as the Dependent Variable

Drawing upon the literature on public value and the OECD and national documents analysed, performance is assessed through four principal dimensions:

- accessibility;
- efficiency;
- quality;
- equity.

These dimensions reflect both traditional concerns regarding administrative efficiency and the contemporary orientation towards the creation of public value and social impact.

From the perspective of the present study, public sector performance should not be assessed exclusively through operational or financial indicators. It is also necessary to analyse the extent to which public services contribute to reducing inequalities, increasing citizens' satisfaction, and strengthening trust in institutions.

4.5 The Proposed Conceptual Model

Based on the arguments developed above, the study proposes the following conceptual model:

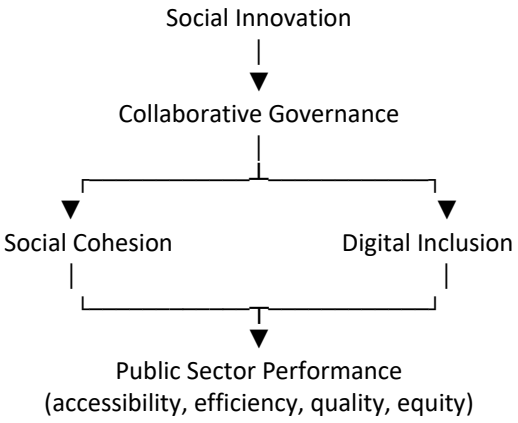


Figure 1: Proposed conceptual model

The model suggests that social innovation may generate stronger and more sustainable outcomes when it is supported by collaborative governance structures, high levels of social cohesion, and appropriate conditions of digital inclusion.

Unlike approaches that treat innovation as a factor exerting a direct effect on performance, the proposed model highlights the existence of intermediate mechanisms that influence the intensity and sustainability of its impact.

4.6 Operationalising the Model: Indicators for Future Evaluations

Although the study is conceptual, the development of an analytical framework requires the identification of indicative indicators that may be utilised in future research.

Component	Indicative Indicators
Social Innovation	Pilot projects, innovation laboratories, partnerships, funded initiatives
Collaborative Governance	Number of actors involved, co-creation processes, cross-sector partnerships
Social Cohesion	Civic participation, social capital, institutional trust
Digital Inclusion	Access to digital services, digital skills, level of use
Public Sector Performance	Accessibility, user satisfaction, efficiency, quality, equity

These indicators are consistent with the impact measurement approaches promoted by the National Strategy for Social Innovation and the National Strategy on Innovation in the Public Sector and may provide the basis for future empirical research.

5. Implications for Public Administration in Romania

5.1 From Social Innovation Projects to Social Innovation Ecosystems

In this context, the National Strategy for Social Innovation 2026–2034 explicitly aims to develop a national social innovation ecosystem based on cooperation among public administration, academia, the private sector,

and civil society organisations. The document reflects European approaches that promote innovation ecosystems as mechanisms capable of facilitating the generation, testing, and scaling of innovative solutions.

For Romanian public administration, this orientation implies a redefinition of the role of public institutions. Rather than being perceived exclusively as service providers, public administrations must become facilitators of collaboration and co-creation processes. This role requires the development of institutional infrastructures that enable knowledge exchange, the transfer of good practices, and cooperation among different categories of actors.

In practice, this transformation may be supported through:

- the development of public innovation laboratories;
- the creation of regional social innovation networks;
- the establishment of permanent mechanisms for dialogue between public administration and civil society;
- the development of funding programmes oriented towards innovation and social impact;
- the promotion of experience-sharing among communities and local administrations.

5.2 Digital Inclusion as a Prerequisite for Public Innovation

Digital transformation is frequently presented as one of the principal directions for the modernisation of public administration. However, the analysis undertaken highlights that the benefits of digitalisation depend directly on the level of digital inclusion.

In the absence of access to digital infrastructure, the necessary skills, and the effective use of electronic services, digitalisation may reinforce existing forms of exclusion and reduce access to public services for certain categories of citizens.

This issue is particularly relevant for Romania, as European data on digital skills and the use of electronic public services indicate the existence of significant gaps in comparison with the European Union average, particularly with regard to the rural population and vulnerable groups.

5.3 Towards an Innovation Strategy Oriented towards Public Value

The analysis suggests that social innovation may become an important driver of the modernisation of Romanian public administration; however, its impact depends upon the existence of favourable social, institutional, and digital conditions.

In this regard, the primary objective of innovation policies should not be merely the introduction of new solutions, but the development of the administration's capacity to generate public value. This entails the provision of public services that are simultaneously more accessible, more efficient, more equitable, and better adapted to citizens' needs.

By integrating social innovation, collaborative governance, social cohesion, and digital inclusion into a coherent public policy framework, Romanian public administration can develop the capacity required to respond to the complex challenges of contemporary society and to generate sustainable long-term outcomes.

6. Conclusions

The economic, social, and technological transformations of recent decades have highlighted the need to develop new governance models capable of responding to the complex challenges faced by contemporary societies. In the context of contemporary economic, social and technological transformations, social innovation has gained relevance in both academic literature and public policy as a mechanism for addressing social challenges and modernising public institutions.

Based on this premise, the study set out to analyse the relationship between social innovation and public sector performance through a mechanism-based approach. Unlike approaches that treat innovation as a factor exerting a direct effect on institutional performance, the paper has argued that the impact of social innovation is conditioned by the existence of intermediary factors that influence the manner in which change is adopted, implemented, and institutionalised.

The analysis of the academic literature and European and Romanian public policy documents has highlighted a significant evolution in the concept of social innovation. While in earlier approaches it was associated primarily with processes of social change and community development, social innovation is now integrated into complex

governance frameworks, innovation ecosystems, and institutional development strategies. Documents produced by the European Commission, the OECD, and the SI-DRIVE project demonstrate that social innovation is increasingly perceived as a strategic instrument for creating public value and strengthening institutional resilience.

Within this context, the study proposes two key mechanisms that may mediate the relationship between social innovation and public sector performance: social cohesion and digital inclusion.

On the one hand, social cohesion facilitates participation, collaboration, and the development of trust between citizens and institutions. Communities characterised by high levels of social capital and civic participation provide more favourable conditions for the implementation and scaling of innovative initiatives. In such contexts, co-creation and collaborative governance processes benefit from greater legitimacy and a stronger capacity to mobilise collective resources.

On the other hand, digital inclusion influences citizens' capacity to participate in digital transformation processes and to benefit from innovative public services. The analysis highlighted that access to technology represents only one component of digital inclusion, alongside digital skills and the effective use of electronic public services. In the absence of these conditions, the benefits of digitalisation may be distributed unequally and may contribute to the amplification of existing forms of exclusion.

The principal theoretical contribution of the study lies in the development of an integrated conceptual model that proposes a theoretical explanation of how social innovation may influence public sector performance through social cohesion and digital inclusion. The proposed model contributes to extending the existing literature by shifting attention from the mere description of innovative initiatives towards the analysis of the mechanisms that explain the production of institutional and social change.

The practical contribution of the research is particularly relevant for public administration in Romania. The analysis of the national strategies on social innovation and innovation in the public sector highlights the existence of a favourable framework for the institutionalisation of innovation and for the development of collaborative ecosystems involving public administration, academia, the private sector, and civil society. However, the analysis suggests that the success of these initiatives depends significantly on the capacity of public authorities to strengthen social cohesion, reduce digital divides and develop effective mechanisms for impact assessment.

From a strategic perspective, the study's conclusions indicate that public policies oriented towards innovation should not focus exclusively on the introduction of new solutions or the digitalisation of public services. Equally important is the development of the social and institutional conditions that enable the potential of innovation to be realised. In the absence of adequate levels of civic participation, institutional trust and digital inclusion, even the most promising innovative initiatives may have a limited impact.

The research also presents a number of limitations. First, the study adopts a conceptual approach based on the critical and interpretative analysis of the academic literature and public policy documents, without empirically testing the relationships proposed within the conceptual model. Second, the analysis focuses on the Romanian context and on recent strategic documents, which may limit the extent to which the conclusions can be generalised. Third, the indicators proposed for operationalising the model are indicative in nature and require validation through further empirical research.

Consequently, future research should seek to empirically test the relationships identified within the conceptual model. Quantitative studies conducted at the regional or local level could assess the influence of social cohesion and digital inclusion on the performance of innovative public services. Furthermore, comparative analyses between Romania and other Member States of the European Union could contribute to identifying the contextual factors that influence the effectiveness of social innovation in public administration.

In conclusion, the paper argues that social innovation may become an important driver of public sector performance in Romania; however, its effects are neither automatic nor uniform. The impact of innovation depends upon the existence of social and institutional mechanisms that facilitate the transformation of innovative ideas into outcomes that are meaningful for citizens and communities. Understanding these mechanisms is essential both for the advancement of scientific knowledge in the field of social innovation and for the design of public policies capable of generating public value and sustainable development in a context characterised by rapid change and complex challenges.

Ethics Declaration: This study is based exclusively on the analysis of academic literature, policy documents, and publicly available strategic frameworks. No human participants, personal data, or sensitive information were involved in the research. Therefore, formal ethical approval was not required.

AI Declaration: Artificial intelligence tools were used to support language editing, text structuring, and manuscript preparation. All conceptualisation, interpretation of sources, critical analysis, verification of references, and final decisions regarding the content remain the sole responsibility of the author. The author reviewed and validated all generated content prior to submission.

References

Adèr, H.J. and Mellenbergh, G.J. (eds.) (1999) Research Methodology in the Life, Behavioural and Social Sciences. London: SAGE Publications.

Ayob, N., Teasdale, S. and Fagan, K. (2016) 'How Social Innovation "Came to Be": Tracing the Evolution of a Contested Concept', Journal of Social Policy, 45(4), pp. 635–653.

BEPA – Bureau of European Policy Advisers (2011) Empowering People, Driving Change: Social Innovation in the European Union. Luxembourg: Publications Office of the European Union.

European Commission (2022) A New European Innovation Agenda. Brussels: European Commission.

European Commission (2024) Science, Research and Innovation Performance of the EU 2024: A Competitive Europe for a Sustainable Future. Luxembourg: Publications Office of the European Union.

Howaldt, J., Butzin, A., Domanski, D. and Kaletka, C. (2014) Theoretical Approaches to Social Innovation: A Critical Literature Review. Dortmund: Sozialforschungsstelle Dortmund.

Howaldt, J., Schröder, A., Butzin, A. and Rehfeld, D. (eds.) (2017) Towards a General Theory and Typology of Social Innovation. SI-DRIVE Deliverable D1.6. Dortmund: Technische Universität Dortmund.

Murray, R., Caulier-Grice, J. and Mulgan, G. (2010) The Open Book of Social Innovation. London: Nesta and The Young Foundation.

OECD (2019) Declaration on Public Sector Innovation. Paris: Organisation for Economic Co-operation and Development.

Rüede, D. and Lurtz, K. (2012) Mapping the Various Meanings of Social Innovation: Towards a Differentiated Understanding of an Emerging Concept. EBS Business School Research Paper Series No.12-03. Oestrich-Winkel: EBS Business School.

General Secretariat of the Government (2024) National Strategy on Innovation in the Public Sector 2025–2029. Bucharest: General Secretariat of the Government.

General Secretariat of the Government (2025) National Strategy on Innovation in the Public Sector 2026–2030. Bucharest: General Secretariat of the Government.

Seed2Scale – National Centre of Competence in Social Innovation (2025) National Strategy for Social Innovation 2026–2034. Bucharest: Seed2Scale – National Centre of Competence in Social Innovation.

Leadership Styles and Burnout in SMEs: Employees' Perceptions and Organizational Implications

Tânia Sousa[1], Pedro Novo Melo[2] and Cláudia Rodrigues[3]
[1]School of Management, Polytechnic University of Cávado and Ave (UPCA), Barcelos, Portugal
[2]Applied Management Research Unit (UNIAG), School of Management, Polytechnic University of Cávado and Ave (UPCA), Barcelos, Portugal
[3]Higher Technical Professional School, Polytechnic University of Cávado and Ave (UPCA), Barcelos, Portugal

pmelo@ipca.pt
cmrodrigues@ipca.pt

Abstract: Leadership is currently understood as a form of influence within interpersonal relationships, playing a crucial role in organizational functioning and employee well-being. This article reports an exploratory, qualitative-led mixed-methods study of employees' perceptions of the relationship between leadership styles and burnout in Portuguese micro, small and medium-sized enterprises (SMEs), a context still little explored in the national literature. A questionnaire survey based on the Multifactor Leadership Questionnaire and the Maslach Burnout Inventory provided descriptive, contextualizing data, while semi-structured interviews, analysed through thematic content analysis, constituted the primary source of evidence. The final sample comprised forty-five employees from six Portuguese SMEs, twenty-eight of whom answered the questionnaire and seventeen took part in the interviews; given its small, non-probabilistic size, the sample does not support statistical generalization or formal hypothesis testing. The findings suggest that, in employees' perception, organizational leadership style is associated with the emergence of burnout. Transformational leadership was the most frequently perceived style, present in all companies studied, but its apparent effectiveness depends on being balanced with other styles: laissez-faire leadership was most often associated with reduced personal and professional accomplishment, while transactional leadership, when resting on excessive pressure to meet goals, was associated with higher emotional exhaustion. Transformational leadership itself, when unbalanced and unsupported, may paradoxically accompany burnout. Emotional exhaustion emerged as the dimension most frequently reported. Rather than confirmatory conclusions, these exploratory findings are offered as propositions for future research with larger, representative samples and inferential statistical methods, and suggest that promoting balanced leadership styles may help reduce burnout risk and foster healthier SME work environments.

Keywords: Leadership, Burnout, Leadership styles, Emotional exhaustion, Small And medium-sized enterprises, Exploratory study, Human resources

1. Introduction

Leadership is currently understood as the driving force of any organization, being largely responsible for the existence and success of what is termed an “organization” (Teixeira, 2013). The way a leader acts has direct repercussions not only on organizational performance but also on cross-cutting domains, namely employee well-being. Given today’s organizational challenges, leadership has gained prominence, requiring leaders to combine technical, emotional and social skills (Dimitriadis & Psychogios, 2021).

At the same time, burnout syndrome has established itself as one of today’s most significant psychosocial occupational hazards, being regarded as a serious process of deterioration in workers’ quality of life, with major implications for physical and mental health (Pêgo & Pêgo, 2016). Knowing that an unsatisfactory leadership style is one of the determining factors in the emergence of burnout (Lourenço et al., 2020), this article proceeds from the premise that understanding this relationship is essential to promoting healthier work environments.

The choice to study this relationship in micro, small and medium-sized enterprises (SMEs) is justified for two reasons. First, in these organizations the proximity between leaders and teams is generally greater. Second, SMEs make up 99.9% of Portuguese companies and employ 78.1% of workers (Instituto Nacional de Estatística, 2014), making organizational leadership in these contexts particularly relevant. The Portuguese literature on leadership and burnout, however, tends to concentrate on specific professions and larger organizations, leaving a gap regarding the smaller-scale business fabric SMEs represent.

Given the limited empirical evidence on this relationship in SMEs, this article adopts an explicitly exploratory stance: rather than testing pre-specified hypotheses within a statistically powered design, it seeks to surface, describe and interpret employees’ perceptions of how leadership styles relate to burnout, aiming to generate propositions for more rigorous, larger-scale research. Its main aim is to explore employees’ perception, in SMEs, of the effect of leadership styles on burnout, guided by the question: is organizational leadership style perceived

by employees as associated with burnout? The specific objectives are: (1) to identify the leadership styles perceived in the selected SMEs; (2) to identify leaders' behaviours that employees associate with professional burnout; and (3) to understand which burnout dimensions are most experienced. Given the exploratory, predominantly qualitative nature of the evidence, the results below should be read as indicative patterns, not confirmed, generalizable findings.

2. Literature Review

2.1 Leadership

Leadership is one of the most widely studied areas in Management and, at the same time, one of those that generates the least consensus due to its enormous complexity (Bilhim, 2013). Over time, the concept has evolved from trait theory and behavioural theories to situational and contingency approaches and, more recently, to the transformational, transactional and charismatic perspectives (Silva, 2003).

Yukl (1998) defines leadership as a process through which a member of a group influences the other members' interpretation of events, the choice of objectives and strategies, and the motivation and cooperation of the group. Teixeira (2013, p.219) similarly defines it as "the process of influencing others so that they do what the leader wants to be done". Leadership is thus not a fixed trait but an interactive process in which the leader affects, and is affected by, followers (Northouse, 2021).

This study adopts the model of Avolio and Bass (2004), which distinguishes transformational leadership (grounded in charisma, intellectual stimulation and individualized consideration), transactional leadership (based on contingent reward and active management by exception) and passive leadership (passive management by exception and laissez-faire) (Franco & Matos, 2013). Transformational leaders are seen as visionary and caring, encouraging employees toward extraordinary goals and positive emotions (Abelha et al., 2018; Bass, 1997), whereas laissez-faire leadership is marked by a lack of guidance and active involvement, creating uncertainty and lack of direction (Teixeira, 2013).

The charisma underlying transformational leadership has itself been extensively theorized. Klein and House (1995) propose that it emerges from the interaction of a "spark" (the leader's charismatic traits), "flammable material" (receptive followers) and "oxygen" (a conducive organizational climate), with all three required for charismatic leadership to take hold. This is consistent with Robbins and Judge's (2013) finding of a positive association between charismatic leadership and employee performance and satisfaction, and suggests that charisma alone is not sufficient to produce positive outcomes — a nuance taken up later when interpreting this study's more mixed findings.

More recent work disaggregates transformational leadership into its sub-dimensions: Deinert et al. (2015) show these are differentially linked to leaders' personality and to distinct performance outcomes, suggesting that treating the construct as a single, undifferentiated whole — as in smaller-scale studies, including this one — may obscure important internal variation, a limitation revisited in the discussion.

2.2 Burnout

Burnout syndrome is defined by Loureiro et al. (2008, p.33) as "a process of response to chronic work-related stress, in which the main manifestations are emotional and physical exhaustion, cynicism and reduced professional efficacy". Coined by Freudenberger in the 1970s, the term evokes the image of "burning out" (Marôco et al., 2016). Maslach and Jackson (1981) later developed the widely used Maslach Burnout Inventory (MBI), identifying three core dimensions: emotional exhaustion, depersonalization and reduced personal and professional accomplishment.

Emotional exhaustion, the central and most evident dimension, reflects a progressive depletion of mental and physical energy (Maslach et al., 2001); depersonalization involves distancing, cynicism and loss of empathy towards colleagues; and reduced accomplishment stems from negative self-evaluation and a sense of incompetence (Areosa & Queirós, 2020). Its causes are multifactorial — work overload, lack of control, an unfavourable environment and lack of emotional support, sometimes compounded by personal traits such as perfectionism (Rehman et al., 2015) — with consequences including poorer health, lower organizational commitment and higher turnover intention (Leiter & Maslach, 1988).

2.3 Relationship Between Leadership and Burnout

The relationship between leadership styles and burnout is a crucial area within the organizational context. Harms et al. (2017) note that stress and leadership are closely linked, with both consistently associated with reduced

performance and job satisfaction. Authoritarian leaders, who impose excessive control and limit autonomy, tend to create more stressful environments and contribute to burnout, whereas participative leaders attentive to well-being tend to minimize this risk (Teixeira, 2013).

Recent studies show a strong association between leadership and burnout (Harms et al., 2017; Lourenço et al., 2020; Taube & Carlotto, 2022; Costa & Fonseca, 2023). Taube and Carlotto (2022) found that negative burnout correlations centre on the leader's role and style, while Costa and Fonseca (2023) identify laissez-faire and autocratic leadership as the main causes of workplace burnout; Inceoglu et al. (2018) similarly report a significant impact of leadership style on employees' behaviour, performance and well-being.

This evidence has continued to grow. Neves et al. (2014) show that employees' perception of organizational support — largely mediated by their direct leader — is a determining factor in burnout, pointing to perceived leadership behaviour as the proximate mechanism. In a nursing-focused scoping review, Loureiro et al. (2021) likewise find leadership style consistently implicated in burnout, while noting that the evidence remains sector-specific and rarely extends to smaller organizations. More recent Portuguese studies reinforce this: Sevilha and Gallucci (2023) link ineffective leadership to burnout; Lopes (2022) associates authentic leadership with employees' stress, burnout and performance; and Gomes (2023), studying a large Portuguese retail chain, shows the leadership–well-being relationship also holding in a commercial setting closer to several of the SMEs studied here. This contemporary literature nonetheless remains concentrated in large organizations, specific professions or single-case studies, rarely addressing the diversified, resource-constrained SMEs that dominate the Portuguese economy, which is the identified gap this exploratory study begins to address.

2.4 Micro, Small and Medium-sized Enterprises

SMEs are characterized by a simple organizational structure, proximity to market and customers, and fewer than 250 employees (Melo & Machado, 2015; 2020). They represent 99.9% of Portuguese companies, employ 78.1% of workers and generate 57.6% of national turnover (Instituto Nacional de Estatística, 2014), making them the engine of the Portuguese and European economies. Work-related strain and degraded working conditions have themselves been identified as a multidimensional, cross-sectoral phenomenon in the Portuguese labour market (Varela et al., 2020), reinforcing the relevance of examining how such strain, including burnout, unfolds within the SME segment that so heavily shapes it. Their simple structure and leader–employee proximity make this context particularly relevant for studying the leadership–burnout relationship, which remains little explored here.

3. Methodology

This research aims to explore employees' perception, in SMEs, of the relationship between leadership styles and burnout. Five exploratory questions were formulated to orient data collection and analysis — not as hypotheses for statistical confirmation, but as guides for interpretation: EQ1, whether perceived leadership style is associated with burnout; EQ2, whether autocratic and laissez-faire styles are associated with the syndrome; EQ3, whether charismatic leadership is associated with employee satisfaction; EQ4, whether transformational leadership is associated with performance and well-being; and EQ5, whether higher burnout is associated with reduced performance and satisfaction. Given the small, non-probabilistic sample described below, these questions were explored descriptively and interpretively rather than tested inferentially.

A mixed-methods approach was adopted for its integrative and complementary potential (Filho et al., 2018). Because of the low response rate in the quantitative stage, the design functioned, in practice, as a qualitative-led study: the questionnaire provides descriptive, contextualizing data, while the semi-structured interviews, analysed through thematic content analysis, constitute the primary evidence. The questionnaire, administered via Google Forms, was distributed by e-mail between May and August to employees of Portuguese SMEs of different sizes and sectors; response numbers rose slowly — around ten after two months, twenty after renewed outreach, and twenty-eight by closing — prompting the addition of a qualitative interview stage, conducted in person and online between July and August. Both samples were obtained through convenience and availability sampling among SMEs that agreed to participate, and are therefore non-probabilistic.

The questionnaire covers three parts: sociodemographic and professional characterization, perception of leadership style, and perception of burnout. Leadership styles were measured with the Multifactor Leadership Questionnaire (MLQ) of Avolio and Bass (2004) — thirty-six items across seven scales (charisma, intellectual stimulation, individualized consideration, contingent reward, active and passive management by exception, and laissez-faire), rated on a five-point scale. Burnout was measured with the Maslach Burnout Inventory (MBI) of

Maslach and Jackson (1981), in the Portuguese adaptation by Melo et al. (1999) — nineteen items across emotional exhaustion, depersonalization and reduced personal accomplishment, rated on a seven-point scale. Interviews followed a structured script based on the same dimensions, and were recorded, transcribed and subjected to thematic-matrix content analysis, this study's principal analytical method.

The final sample comprised forty-five employees from six Portuguese SMEs (Company A to F) in sectors such as management consulting, automotive trade and repair, engineering, embroidery and physiotherapy, with eight to forty-two employees each. Twenty-eight answered the questionnaire and seventeen took part in interviews, across four of the six companies. Data collection ran from May to August, with confidentiality and anonymity ensured throughout. Leadership style is treated as the variable of interest and burnout as the outcome of interest; given the exploratory, non-probabilistic design, this relationship is interpreted descriptively rather than through formal statistical inference.

4. Results

From the quantitative analysis (n = 28), descriptive statistics indicate that 71% of participants were female (Figure 1), 54% were single, and most were aged 20–29. The large majority (82%) held a permanent contract and worked 40 hours per week, mostly in administrative roles. These figures describe this specific, non-probabilistic sample and do not characterize the broader population of SME employees in Portugal.

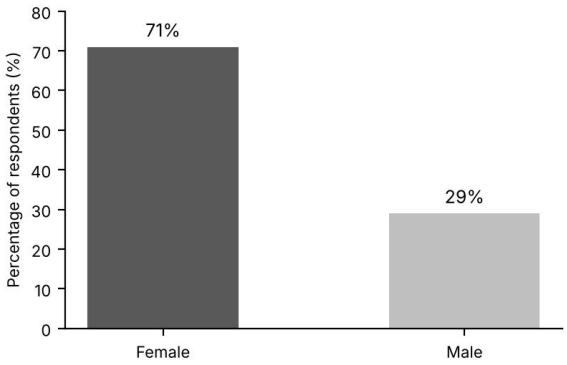


Figure 1: Gender distribution of the questionnaire survey sample (n = 28; descriptive data, non-probabilistic sample)

Regarding leadership, the MLQ results showed the simultaneous presence of transformational, transactional and laissez-faire traits, as perceived by respondents. Positive responses stood out on charisma items such as "talks optimistically about the future" (39.3% "frequently") and "prioritizes the group's interests" (50% "frequently"), suggesting charismatic leadership in several respondents' perception. Transactional behaviours were also identified, particularly around defining responsibilities and recognizing goal achievement. However, a relevant set of responses also revealed laissez-faire traits — "only intervenes when errors occur" and "is slow to respond to urgent questions raised" — a pattern worth noting, given this style's elsewhere-documented association with burnout (Section 2.3).

On the MBI, 35.7% of respondents felt emotionally unfulfilled "a few times a month" and 28.6% reported feeling burned out with the same frequency, pointing to relevant emotional exhaustion in this sample. Conversely, most respondents (78.6%) never treated colleagues as "impersonal objects", indicating low depersonalization overall, though a minority (14.3%) acknowledged it occasionally.

In the qualitative analysis — this study's primary analytical component — with seventeen interviewees from four companies (B, D, E and F), transformational leadership was perceived by all interviewees, mainly through charisma and intellectual stimulation. Table 1 summarizes the leadership styles and burnout dimensions identified, by company.

Table 1: Leadership styles and burnout dimensions identified in the interviews, by company (descriptive counts from thematic content analysis, n = 17)

Company	n	Transformational	Transactional	Laissez-faire	Emotional exhaustion	Deperson-alization	Reduced accomplishment
Company B	4	4	2	0	2	0	1
Company D	4	4	2	3	3	0	2
Company E	5	5	4	0	3	2	1
Company F	4	4	2	2	3	1	0
Total	17	17	10	5	11	3	4

Source: own elaboration, based on the interviews' content analysis matrix.

As shown in Table 1, transactional leadership was perceived by ten of the seventeen interviewees, mainly linked to reward systems, while laissez-faire leadership was identified in five cases, concentrated in Companies D and F. Emotional exhaustion was the most frequently mentioned dimension (eleven of seventeen accounts), followed by reduced accomplishment (four cases) and depersonalization (three cases).

Employees' accounts illustrate this relationship. One employee from Company B described: "I don't know if I'd call it burnout, but almost — if it wasn't, it was close (…) working at that time was a real effort (…) I felt worn down". Another, from Company D, reported losing enthusiasm: "now I no longer have that enthusiasm and motivation to come to work", linking this to a lack of communication and recognition — characteristics of the laissez-faire style. Even so, some cases of well-balanced transformational leadership were not associated with any reported symptom of burnout.

5. Discussion of Results

Because this study follows an exploratory, qualitative-led design based on a small, non-probabilistic sample, the patterns discussed below in relation to the five exploratory questions (EQ1–EQ5) are indicative tendencies, not confirmed or statistically tested conclusions — propositions for further research rather than generalizable findings.

On EQ1, both strands point the same way: perceived leadership style appears associated with burnout, consistent with Inceoglu et al. (2018) and Harms et al. (2017).

On EQ2, the data are broadly consistent with autocratic and laissez-faire styles being associated with higher reported burnout, in line with Costa and Fonseca (2023). In the interviews, centralized decision-making combined with a lack of clear guidance appeared, in employees' own accounts, to accompany more pronounced emotional and physical fatigue and a growing sense of unfulfillment — again, self-reported rather than objectively measured.

EQ3, on charismatic leadership and satisfaction, finds similarly consistent support: charisma items obtained overall positive responses, and interviewees valued effective communication, trust and inspiring vision, echoing Robbins and Judge (2013). Read through Klein and House's (1995) "spark–fuel–oxygen" model, this suggests that a charismatic leader, receptive employees and a supportive climate coexisted in at least some companies studied — though the data cannot establish which element was decisive.

EQ4, on transformational leadership and performance/well-being, receives only partial, more complex support. Although the literature broadly reports a positive effect (Abelha et al., 2018; Bass, 1997), this study suggests that when transformational leadership is perceived as exercised alongside other styles, such as transactional or laissez-faire, without balance, it can coexist with — and in some accounts accompany — burnout. Consistent with Deinert et al.'s (2015) finding that the construct's sub-dimensions relate differently to performance, this may reflect uneven effects across facets: inspirational communication may support well-being while high, unsupported expectations generate overload instead of motivation.

Finally, EQ5 — higher burnout associated with reduced performance and satisfaction — also finds support: reports of exhaustion and loss of interest accompanied expressions of lower motivation, echoing Leiter and Maslach (1988) and Caetano (2024). This aligns with Neves et al.'s (2014) finding that perceived organizational support — largely channelled through the direct leader in small firms — is a determinant of burnout, and with the broader pattern in Loureiro et al. (2021), Sevilha and Gallucci (2023), Lopes (2022) and Gomes (2023) across nursing, retail and other Portuguese settings. Overall, these exploratory findings are compatible with emotional exhaustion being the most salient burnout dimension in the SMEs studied — explained less by an absence of positive transformational traits than by pressure to meet goals (transactional) and lack of direction and support (laissez-faire), which appear to accompany exhaustion even alongside transformational traits.

6. Conclusion

This exploratory study sought to surface and interpret Portuguese SME employees' perceptions of the leadership–burnout relationship, opening a line of inquiry largely absent from a national literature usually centred on other sectors and larger organizations. Rather than confirming hypotheses, the findings offer indicative patterns and propositions: in employees' own perception, organizational leadership style appears associated with the emergence of burnout.

Transformational leadership was the most consistently perceived style, but its apparent effectiveness depends on balance: well applied, it seems to accompany a healthier culture; paired with excessive expectations, overload or lack of support, it may paradoxically coexist with burnout. Laissez-faire leadership was most often linked to reduced accomplishment, while transactional leadership showed a dual character — positive with clear rewards, negative under excessive pressure. Emotional exhaustion emerged as the most frequently reported burnout dimension.

This study's contribution is deliberately modest and exploratory. It does not claim causal or statistically generalizable relationships; rather, it offers an initial, qualitatively grounded account of how employees in an understudied segment of the Portuguese economy — SMEs — perceive this relationship, surfacing propositions for future, larger-scale testing. Its contribution to academic debate lies less in confirming existing theory than in grounding, with first-hand qualitative evidence from a previously unstudied context, testable propositions extending the leadership–burnout literature beyond the professions and large organizations where it has concentrated. The interviews also revealed that many employees have little awareness of the concept of burnout, underscoring the value of organizational awareness-raising and early recognition — a practical implication independent of the study's exploratory status.

Several limitations should be weighed. The sample is small and non-probabilistic, drawn from six SMEs that agreed to participate, reflecting both the difficulty of recruiting companies and the topic's sensitivity, which led some to decline; findings cannot be statistically generalized. The quantitative component (n = 28) was treated descriptively only — no inferential tests were applied, and conclusions should be read as propositions, not confirmed effects. Questionnaire length may also have affected response quality and contributed to the low response rate that pushed the study toward the qualitative interviews. Finally, both leadership style and burnout were assessed through self-reported perceptions rather than independent or longitudinal measures, which may be subject to common-method bias and retrospective reconstruction.

Future research should replicate this study with larger, probabilistically sampled SME populations, large enough to support inferential analysis — such as correlation and regression modelling of MLQ and MBI dimensions — so these exploratory associations can be formally tested. Disaggregating transformational leadership into its sub-dimensions, following Deinert et al. (2015), would help clarify which behaviours drive positive outcomes and which contribute to burnout when unbalanced. A longitudinal design would help establish temporal precedence, which this cross-sectional study cannot. Finally, future work should explore moderating variables — organizational culture, sector, length of service — and extend comparison to other under-researched contexts, building on the propositions this study has sought to establish.

Acknowledgements

This work was supported by national funds through FCT - Fundação para a Ciência e Tecnologia, I.P. under the project UNIAG UID/04752/2025 (DOI 10.54499/UID/04752/2025).

Ethics Statement: This study ensured the anonymity and confidentiality of all participating companies and employees, and informed consent was obtained from all respondents and interviewees prior to data collection.

Given the organizational and low-risk nature of the research, formal ethics clearance from an institutional committee was not required, in line with the standards applicable to this type of study.

AI Statement: An artificial intelligence tool (Claude, by Anthropic) was used in the revision of this article. All data, analyses, and conclusions are the work of the authors themselves, and the revision assisted by the tool was fully validated by them.

References

Abelha, D., Carneiro, P. and Cavazotte, F. (2018) "Liderança transformacional e satisfação no trabalho: Avaliando a influência de fatores do contexto organizacional e características individuais", *Revista Brasileira de Gestão de Negócios*, Vol 20, No. 4, pp 516-532.

Areosa, J. and Queirós, C. (2020) "Burnout", *International Journal on Work Condition*, Vol 20, pp 71-90.

Avolio, B.J. and Bass, B.M. (2004) *Multifactor Leadership Questionnaire: Manual and Sampler Set*, 3rd edition, Mind Garden, Redwood City.

Bass, B.M. (1997) "Does the transactional-transformational leadership paradigm transcend organizational and national boundaries?", *American Psychologist*, Vol 52, No. 2, pp 130-139.

Bilhim, J. (2013) *Teoria Organizacional*, ISCSP, Lisboa.

Caetano, F. (2024) O Papel da Liderança sobre a Síndrome de Burnout: O seu Impacto no Comportamento dos Colaboradores.

Costa, S.A. and Fonseca, C.S. (2023) "Burnout: A correlação entre o papel do líder organizacional e o adoecimento do colaborador", *Revista FAROL*, Vol 19, No. 19, pp 181-193.

Cunha, M.P.E., Rego, A., Cunha, R. and Cabral-Cardoso, C. (2004) *Manual de Comportamento Organizacional e Gestão*, 3rd edition, Editora RH, Lisboa.

Cunha, M.P.E., Rego, A., Cunha, R. and Cabral-Cardoso, C. (2016) *Manual de Comportamento Organizacional e Gestão*, 8th edition, Editora RH, Lisboa.

Deinert, A., Homan, A.C., Boer, D. and Voelpel, S.C. (2015) "Transformational leadership sub-dimensions and their link to leaders' personality and performance", *The Leadership Quarterly*, Vol 26, No. 6, pp 1095-1120.

Dimitriadis, N. and Psychogios, A. (2021) *Neurociência para Líderes: Como Liderar Pessoas e Empresas para o Sucesso*, Universo dos Livros, Lisboa.

Filho, J.R.F., Marchisotti, G.G., Maggessi, K.M.F. and de Miranda Junior, H.L. (2018) "Método de pesquisa misto para identificação do problema de pesquisa", *Conhecimento & Diversidade*, Vol 10, No. 22, pp 88-102.

Franco, M. and Matos, P. (2013) "Leadership styles in SMEs: A mixed-method approach", *International Entrepreneurship and Management Journal*.

Gomes, D. (2023) *A Influência dos Estilos de Liderança no Clima Organizacional: A Perceção dos Colaboradores do IKEA - Loja de Braga* (Dissertação de mestrado).

Harms, P.D., Credé, M., Tynan, M., Leon, M. and Jeung, W. (2017) "Leadership and stress: A meta-analytic review", *The Leadership Quarterly*, Vol 28, No. 1, pp 178-194.

Inceoglu, I., Thomas, G., Chu, C., Plans, D. and Gerbasi, A. (2018) "Leadership behavior and employee well-being: An integrated review and a future research agenda", *The Leadership Quarterly*, Vol 29, No. 1, pp 179-202.

Instituto Nacional de Estatística (2014) *Empresas em Portugal - 2012*, Instituto Nacional de Estatística, Lisboa.

Klein, K.J. and House, R.J. (1995) "On fire: Charismatic leadership and levels of analysis", *The Leadership Quarterly*, Vol 6, No. 2, pp 183-198.

Leiter, M.P. and Maslach, C. (1988) "The impact of interpersonal environment on burnout and organizational commitment", *Journal of Organizational Behavior*, Vol 9, No. 7, pp 297-308.

Lopes, D. (2022) *Impacto da Liderança Autêntica no Stress, Burnout e Performance dos Colaboradores* (Dissertação de mestrado).

Loureiro, H., Pereira, A.N., Oliveira, A.P. and Pessoa, A.R. (2008) "Burnout no trabalho", *Revista de Enfermagem Referência*, Vol 2, No. 7, pp 33-41.

Loureiro, R., Ferreira, A.I., Kohlsdorf, M. and Pérez-Nebra, A.R. (2021) "Influência dos estilos de liderança no burnout dos enfermeiros: Uma scoping review", *Journal of Health NPEPS*.

Lourenço, V.P., Pérez-Nebra, A.R., Ferreira, A.I. and Kohlsdorf, M. (2020) "Relação entre presenteísmo, síndrome de burnout e liderança ética em organizações escolares", *Fractal: Revista de Psicologia*, Vol 32, No. esp, pp 218-226.

Marôco, J., Marôco, A.L., Leite, E., Bastos, C., Vazão, M.J. and Campos, J. (2016) "Burnout em profissionais da saúde portugueses: Uma análise a nível nacional", *Revista Científica da Ordem dos Médicos*, Vol 29, No. 1, pp 24-30.

Maslach, C. and Jackson, S.E. (1981) "The measurement of experienced burnout", *Journal of Organizational Behavior*, Vol 2, No. 2, pp 99-113.

Maslach, C., Schaufeli, W.B. and Leiter, M.P. (2001) "Job burnout", *Annual Review of Psychology*, Vol 52, No. 1, pp 397-422.

Melo, B.T., Gomes, A.R. and Cruz, J.F.A. (1999) *Desenvolvimento e Adaptação de um Instrumento de Avaliação Psicológica do "Burnout" para os Profissionais de Psicologia*, APPORT, Braga.

Melo, P. and Machado, C. (2015) *Gestão de Recursos Humanos nas Pequenas e Médias Empresas: Contextos, Métodos e Aplicações*, RH Editora, Lisboa.

Melo, P. and Machado, C. (2020) *O Livro de Ouro para a Gestão de Recursos Humanos nas PME*, Editora RH, Lisboa.

Neves, V.F., Oliveira, Á.F. and Alves, P.C. (2014) "Síndrome de burnout: Impacto da satisfação no trabalho e da perceção de suporte organizacional", *Psico*, Vol 45, No. 1, pp 45-54.

Northouse, P.G. (2021) *Leadership: Theory and Practice*, 9th edition, Sage Publications, Thousand Oaks.

Pêgo, F.P.L. and Pêgo, D.R. (2016) "Síndrome de burnout", *Revista Brasileira de Medicina do Trabalho*, Vol 14, No. 2, pp 171-176.

Rehman, W.U., Yousaf, S. and Naeem, H. (2015) "Impact of burnout on employees' performance: An analysis of the banking industry", *World Review of Entrepreneurship, Management and Sustainable Development*, Vol 11, No. 1, pp 88-105.

Robbins, S.P. and Judge, T.A. (2013) *Comportamiento Organizacional*, 15th edition, Pearson, Ciudad de México.

Serviço Nacional de Saúde (2019) "Stress profissional", [online], https://www.sns.gov.pt.

Sevilha, L.L. and Gallucci, M. (2023) "A influência da gestão de liderança ineficaz no desenvolvimento do burnout", *Revista de Psicologia Organizacional*, Vol 15, No. 2, pp 45-56.

Silva, R.C. da (2003) "Controle organizacional, cultura e liderança: Evolução, transformações e perspectivas", *Revista de Administração Pública*, Vol 37, No. 4, pp 797-816.

Taube, M.E. and Carlotto, M.S. (2022) "Síndrome de burnout e a liderança: Revisão sistemática da literatura", *Revista Administração em Diálogo*, Vol 24, No. 3, pp 28-47.

Teixeira, S. (2013) *Gestão das Organizações*, 3rd edition, Escolar Editora, Lisboa.

Varela, R., Santa, R., Oliveira, H., Matos, A.C., Rolo, D., Leher, R. and Areosa, J. (2020) "Desgaste, condições de vida e trabalho em Portugal: Uma perspetiva multidisciplinar", *Revista Estudos do Século XX*, Vol 20, pp 183-210.

The Ethics and Identification of Combat Leadership: Navigating High-risk Research in a High-tension Global Landscape

Jakub Stříbrný
University of Defence, Brno, Czechia

Jakub.stribrny2@unob.cz

Abstract: Combat leadership defined as the ability to inspire and coordinate teams in high-pressure, high-importance, and high-threat environments is a critically important but under-discussed topic in leadership studies. While conventional military leadership is well-documented, specific data from active combat zones remains scarce. This research gap is primarily due to the ethical imperative that researchers ought not interfere with or compromise the safety of personnel in "in extremis" situations where lives are at immediate risk. To address this gap, this paper suggests a framework for predicting and developing resilient combat leaders by evaluating personnel in high-stress training environments by combining complex psychophysiological evaluations. However, as global political tensions rise, the need for scientifically grounded methods to identify and develop leaders capable of managing these high-risk environments has never been more urgent.

Keywords: Combat leadership, Ethics, High-risk research, Paratroopers, Trust

1. Introduction

The modern battlefield can provide all the machines, inventions, tactics, or sheer numerical superiority, yet the commander remains the most vital element of warfare. When soldiers are commanded by a capable leader, their chances of survival and mission success increase exponentially. Consequently, the education and identification of such leaders are not merely academic concerns but also critical necessities that directly impact the lives of soldiers and the integrity of the army (Ambrozová et al., 2016; Ullrich, 2022).

Leadership in a combat environment is distinct from "classic" or civilian leadership primarily due to its unique, "in extremis" nature (Beyer, 2010; Dixon & Weeks, 2017). While a civilian leader manages organisational goals, a military commander eventually finds themselves in a position where they must make life-or-death decisions for themselves, their subordinates, and their colleagues. This environment necessitates a continuous cycle of preparation, in which leaders must minimise potential dangers, internalise objectives from higher-ups, and find the inner motivation to inspire their team in the face of immediate threats (Ullrich, 2017).

A truly competent leader is followed because subordinates want to follow him, not because they are forced to. This dynamic is built on trust, where the leader stands as a member of the team rather than its executioner. However, becoming such a quality leader is a lifelong process of growth, incremental steps, and learning from failure FM22-100 2004). It is not a skill that can be acquired overnight or through theory alone. It must be practised and applied in the field through the entirety of one's life.

Yet, as global geopolitical tensions rise, the luxury of time for "natural" leadership emergence is shrinking. There is an urgent need for scientifically grounded methods to identify and develop leaders capable of managing high-risk environments before they are placed in them. This presents a significant research paradox: the data required to validate these identification methods is most abundant in active combat zones, yet the ethical imperative of non-interference dictates that researchers must not compromise the safety of personnel in situations where lives are at risk.

2. The Research Gap: Ethical and Operational Barriers

Despite a distinct lack of empirical research on active combat leadership and a scarcity of publications providing a clear conceptual framework, some literature offers parameters for the term. Combat leadership mentioned in Hard Knocks states: "*that it is the art of getting soldiers to do willingly what instinct and society have programmed them not to do: to place themselves at mortal risk and to kill others (with greater emphasis on the former concern) while engaged in battle" (Faulkner, 2012)*. While several military publications address leadership broadly, the vast majority treat the concept through the lens of peacetime administration or garrison management rather than analysing combat leadership (Kirkland, 1990; Wagstaff, 2019).

An interesting approach in the literature comes through the concept of *in extremis*. Term in extremis comes from Latin, which means "*shortly before death*". It refers to situations where it is believed that lives are at risk. It is rarely present in ordinary civilian life. In extremis situations are commonly found in hazardous occupations such as law enforcement, military service, and firefighting (Cook et al., 2007; Dixon et al., 2019).

Thomas Kolditz's 2007 book of the same name offers an insightful examination of in extremis Leadership. ¨His work explores the concept of "*extremis leadership*"*(Kolditz, 2007)*, which refers to leadership in extreme, high-risk stress situations. The situations described can lead to severe injuries or have more serious consequences, such as loss of life. Kolditz draws on his experience as a Military leader and researcher to provide insights and strategies for leadership in these challenging situations. Kolditz also emphasises the importance of situational awareness and understanding the context in which an extreme situation arises. It emphasises the need for leaders to anticipate and adapt to changing circumstances and thoroughly understand the risks and potential consequences of their decisions. The book explores the psychological and emotional factors that can influence leadership in extreme situations and lays the groundwork for practical strategies and techniques outlined in the following sections (Kolditz, 2007).

Combat leadership demands the ability to inspire and direct others in high-threat, high-pressure environments. In these volatile situations, leaders must make split-second tactical and strategic decisions, adapting instantly to changing circumstances while managing scarce resources to achieve the objective. Beyond executing the mission, they carry the vital responsibility of maintaining troop morale, ensuring every soldier remains motivated and prepared for the extreme stresses of battle.

The scarcity of empirical research on combat leadership is rooted in the ethical and practical impossibility of conducting scientific studies in an active war zone without endangering troops and the mission. Consequently, most military leadership literature relies on non-combat samples, leaving the specific dynamics of under-fire command understudied (Bass et al., 2003; Beyer et al., 2010). Beyer talks about two groups of officers. Ones with combat experience with evidence, such as a combat badge awarded for direct conflict with the enemy (combat leader) or combat experience with no direct battle with the enemy (noncombat leader) (Beyer, 2010). One of the few projects that examines this topic by taking the post-combat experience.

Another author who delves into this topic refers to the “essence” of Combat Leadership as a person who addresses his soldiers with the words ''Follow Me'' (Yellin, 2008). This book relates to a study from 1949 (Stouffer et al., 1949), in which they asked combat veterans who were in the Mediterranean during World War II to describe officer leadership practices that gave them confidence in their leader and gave them courage (Stouffer et al., 1949; Wansink et al., 2008).

3. Methodological Strategies for Identification

Because researchers cannot ethically or safely conduct experiments in the middle of a real battlefield, this paper relies on a documentary and theoretical analysis. This means instead of running a live lab test, the study carefully gathers, filters, and connects existing high-quality scientific research on combat stress. By using a strict search process to select papers, the methodology ensures the review is highly structured, unbiased, and scientifically rigorous, turning a collection of published data into a reliable new framework for leadership development.

When attempting to identify effective leadership traits in extreme environments, the first methodological strategy involves questioning soldiers after they have experienced actual combat (Stergiou et al., 2024). However, this approach brings several flaws that compromise the reliability of the collected data. First, soldiers are often deeply hesitant to speak honestly or vulnerably about the raw, traumatic realities of their combat experiences (Col et al., 2004; Grady et al., 2016; Sørensen et al., 2026). Second, the timing of the data collection introduces severe methodological risks. Interviewing soldiers directly after a high-stress event yields highly questionable data due to immediate emotional shock, while waiting to interview them after some time has passed introduces significant memory distortion (Col et al., 2004; Di Nota et al., 2021; Porter & Powell, 2024). Over time, retrospective bias frequently creeps in, as soldiers naturally attempt to rewrite the narrative to make themselves or their leaders appear more heroic and successful than they were in the heat of the moment.

Alternatively, researchers can conduct controlled experiments in non-combat environments, such as simulation facilities and training academies, to standardise stressors and eliminate retrospective recall delay (Schilder et al., 2024; Steinborn et al., 2022). By testing subjects immediately after a tactical simulation, investigators can capture highly accurate, untainted data before memory decays. However, this strategy introduces an issue regarding validity: participants ultimately know their lives are not truly in jeopardy, artificial training stress cannot fully replicate the primal psychological toll and life-altering stakes of real-world warfare

To expand upon the methodological framework, the deployment of granular and complex data collection pipelines is essential for capturing the multi-dimensional attributes of soldiers operating in high-stakes environments. Longitudinal designs, such as the 5-year prospective framework (Olinover et al., 2023), provide a robust model for tracking personnel from pre-recruitment appraisal through real-life leadership execution.

Rather than relying on static or isolated metrics, this methodology highlights the value of synthesising diverse data streams—including cognitive testing, structured behavioural interviews, peer-derived leadership emergence tracking, and supervisor performance appraisals across progressive operational contexts. Integrating such comprehensive tracking protocols presents a viable strategy for predicting adaptability and performance limits within extreme, high-risk organisations.

Ultimately, optimising these predictive models necessitates capturing how personnel handle acute physiological and psychological burdens under pressure. This can be achieved by deploying complex psychophysiological testing (Sládek et al., 2021; Ullrich et al., 2020) on paratroopers, who routinely face life-threatening stress as an inherent component of their specialised training. Rather than treating psychological evaluation and physiological data as separate silos, an integrated, real-time testing paradigm offers a holistic window into soldiers and their resilience (Perna et al., 2020; Simmons et al., 2013; Werner E et al., 2012). By mapping a candidate's baseline personality and cognitive traits combined with heart rate variability, high-stakes organisations can identify the precise psychological profiles and physiological thresholds that predict optimal stress resilience, emotional regulation, and decisive leadership execution under extreme operational pressure (Reynard et al., 2011; Thayer et al., 2012; Thayer et al., 2006).

4. Practical Implications for Leadership Development

Studying the intense stress faced by paratroopers during training provides an interesting way to get closer to understanding how people react to the life-threatening realities of actual combat (Clemente-Suárez et al., 2017). Because it is nearly impossible to safely replicate the true chaos of a battlefield, tracking elite airborne soldiers who perform high-risk jumps daily offers a rare, controlled look at how the human body and mind handle extreme fear (Jamro et al., 2025). By mapping a candidate's baseline personality and cognitive traits combined with heart rate variability, high-stakes organisations can identify the precise psychological profiles and physiological thresholds that predict optimal stress resilience, emotional regulation, and decisive leadership execution under extreme operational pressure (Minassian et al., 2014). Ultimately, using these paratrooper models allows leadership development programmes to spot the key markers of elite performance, ensuring future commanders have the natural mental sharpness and calmness needed to lead their troops through the worst of war.

5. Conclusion

When facing the dangers of war, soldiers mostly rely on the trust and loyalty of their comrades (Sweeney et al., 2009). The life-or-death situations they face every day require a deep and unwavering commitment to their leader and one another. Trust becomes the foundation of their collective strength, allowing them to overcome differences and fears (Mooradian et al., 2006; Sweeney, 2007). Soldiers have to place absolute faith in their leader's guidance, while the leader protects and directs the troops with honour and integrity. This mutual trust and loyalty forge an unbreakable bond that fuels their shared purpose, enabling them to confront the crucible of war with unwavering determination.

Study on: *„Do soldiers reevaluate trust in their leaders before combat operations?* " (Sweeney, 2010) found that 75% of the soldiers reconsidered their trust in their leaders, and 41% reconsidered their trust to a moderate to a great extent. The measure of central tendency for this distribution was somewhat moderate on the assessment scale, with a mean of 4.55 and a median of 3.0(Sweeney, 2010). As is in the exhibit from Combat Leadership Lessons for all Leaders *(Mjr. Crandall et al, 2006)*.

Table 1: Combat Leadership Lessons for all Leaders. Source (Mjr. Crandall et al, 2006)

Lesson 1	Trust is the key to the exercise leadership.
Lesson 2	Competence is king in the development of trust in extreme situations such as combat.
Lesson 3	Lead by caring.
Lesson 4	Competence and character determine a leader's credibility.
Lesson 5	Leading by example enhances credibility and provides subordinates direction.

This principle aligns with the concept that "*leaders eat last*" (Sinek, 2014) which presumes that fostering an organisational culture rooted in trust and psychological safety is key to long-term success. Sinek argues that leaders who actively prioritise the well-being of their subordinates cultivate a baseline of deep cooperation and resilience. Specifically, in Chapter 4, "*The Courage to Do the Right Thing*," (Sinek, 2014) explores the ethical

imperatives of leadership, demonstrating that exceptional commanders and executives possess the moral fortitude to make agonising decisions and defend core values, even when confronted with intense adversity or institutional opposition.

Ultimately, this paper shows that the dangerous stress paratroopers face during training is a possible, safe and effective way to study how people react in life-threatening situations. By looking at research on personality, cognitive functions, and heart rate tracking, we can create a model to spot people who handle stress well. When we combine these bodies and mind measurements with established ideas about leadership and trust, it gives high-stakes organisations an interesting point of view. Using these methods ensures that future commanders have the natural calmness and mental strength needed to keep their teams together and make smart choices under pressure.

In conclusion, optimising leadership development within high-stakes organisations requires a shift from static evaluations to dynamic, integrated psychophysiological tracking. By utilising the intense, life-threatening stressors of paratrooper training as a controlled proxy for actual combat, researchers can effectively observe how human systems bend and adapt under extreme duress. Combining baseline personality and cognitive testing with real-time heart rate variability data allows organisations to identify the precise markers that predict resilient decision-making and emotional control. Ultimately, fostering this deep psychological safety and trust ensures that future commanders possess both the autonomic stability and moral fortitude required to guide their troops through the intense friction of war.

Ethics Declaration: Because this paper is primarily a theoretical and conceptual exploration of the frameworks surrounding combat leadership, it did not involve any human participants, animal testing, or empirical data collection. Consequently, formal ethical clearance and institutional approval were not required for the research presented in this paper.

AI Declaration: As English is the author's second language, an artificial intelligence tool was utilised during the drafting of this paper to assist with language processing. Specifically, the AI was used to translate concepts from the author's native language, improve sentence structure, and correct grammatical phrasing.

All conceptual arguments, theoretical frameworks, and academic syntheses regarding combat leadership remain entirely the original work of the author. The material produced by the AI tool was used as a stylistic and linguistic aid to ensure clarity, academic rigour, and readability for conference participants.

References

Ambrozová, E., Koleňák, J., Ullrich, D., & Pokorný, V. (2016). Kognitivní management (2nd ed.). Key Publishing.

Bass, B., Avolio, B., Jung, D., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership. Journal of Applied Psychology, 88(2), 207–218. https://doi.org/10.1037/0021-9010.88.2.207

Beyer, P. (2010). Authentic leadership In-extremis: A study of Combat leadership. Capella University.

Clemente-Suárez, V. J., Robles-Pérez, J. J., & Fernández-Lucas, J. (2017). Psychophysiological response in parachute jumps, the effect of experience and type of jump. Physiology and Behavior, 179, 178–183. https://doi.org/10.1016/j.physbeh.2017.06.006

Col, L., Dave, G., & Siddle, B. K. (2004). Critical Incident Amnesia: The Physiological Basis and the Implications of Memory Loss During Extreme Survival Stress Situations.

Cook, Ch., Webb, Ch., & Vansickle, J. (2007). Developing and Mentoring "In Extremis" Leaders Lessons Learned from Special Operations. Air & Space Power Jurnal, 34(2), 67–77.

Di Nota, P. M., Stoliker, B. E., Vaughan, A. D., Andersen, J. P., & Anderson, G. S. (2021). Stress and memory: a systematic state-of-the-art review with evidence-gathering recommendations for police. Policing, 44(1), 1–17. https://doi.org/10.1108/PIJPSM-06-2020-0093

Dixon, D., & Weeks, M. (2017). Leading in extremis situations: How can leaders improve? In Advanced Sciences and Technologies for Security Applications (pp. 251–275). Springer. https://doi.org/10.1007/978-3-319-55059-6_14

Dixon, D., Weeks, M., Citadel, T., Boland, R., & Gaskin, J. (2019). In Extremis Leadership: A Study of the Effects in Different Contexts. American Journal of Management, 19(3), 35. https://doi.org/10.33423/ajm.v19i3.2188

Faulkner, R. (2012). The school of hard knocks: Combat leadership in the American Expeditionary Forces (12th ed.). Texas A&M University Press.

Grady, R. H., Butler, B. J., & Loftus, E. F. (2016). What Should Happen After An Officer-Involved Shooting? Memory Concerns in Police Reporting Procedures. In Journal of Applied Research in Memory and Cognition (Vol. 5, Number 3, pp. 246–251). Elsevier Inc. https://doi.org/10.1016/j.jarmac.2016.07.002

Jamro, D., Kociuba, M., Lachowicz, M., Korytko, P., & Zurek, G. (2025). Assessment of Changes in Executive Functions and Attention of Cadets as a Result of Military Parachute Jumping. Brain Sciences, 15(1). https://doi.org/10.3390/brainsci15010085

Kirkland, F. (1990). Combat Leadership styles: Empowerement versus Authoritarism. The US Army War College Quarterly: Parameters, 20(1), 61–72. https://doi.org/10.55540/0031-1723.1560

Kolditz, T. (2007). In extremis Leadership: Leading as if your life depended on it. John Wiley & Sons.

Major Doug Crandall, & Jim Collins. (2006). Leadership Lessons from West Point (1st ed.). Jossey-Bass.

Minassian, A., Geyer, M. A., Baker, D. G., Nievergelt, C. M., O'connor, D. T., & Risbrough, V. B. (2014). Heart rate variability characteristics in a large group of active-duty marines and relationship to posttraumatic stress. Psychosomatic Medicine, 76(4), 292–301. https://doi.org/10.1097/PSY.0000000000000056

Mooradian, T., Renzl, B., & Matzler, K. (2006). Who trusts? Personality, trust and knowledge sharing. Management Learning, 37(4), 523–540. https://doi.org/10.1177/1350507606073424

Olinover, M., Gidron, M., Yarmolovsky, J., Lipschits, O., & Geva, R. (2023). Predicting Leadership Success in Extreme Organizations: A Prospective Study From Pre-Recruitment Through Leading in Real-Life. Journal of Leadership and Organizational Studies, 30(1), 71–89. https://doi.org/10.1177/15480518221117886

Perna, G., Riva, A., Defillo, A., Sangiorgio, E., Nobile, M., & Caldirola, D. (2020). Heart rate variability: Can it serve as a marker of mental health resilience? In Journal of Affective Disorders (Vol. 263, pp. 754–761). Elsevier B.V. https://doi.org/10.1016/j.jad.2019.10.017

Porter, L. E., & Powell, M. (2024). Understanding police officers' experiences of post-shooting interviews: factors influencing account-giving. Journal of Criminal Psychology. https://doi.org/10.1108/JCP-11-2024-0102

Reynard, A., Gevirtz, R., Berlow, R., Brown, M., & Boutelle, K. (2011). Heart rate variability as a marker of self-regulation. Applied Psychophysiology Biofeedback, 36(3), 209–215. https://doi.org/10.1007/s10484-011-9162-1

Schilder, F. P. M., Withagen, F. M., de Weijer, A. D., Bruinsma, B., & Geuze, E. (2024). Examining the applicability of virtual battle space for stress management training in military personnel—A validation study. Stress and Health, 40(6). https://doi.org/10.1002/smi.3475

Simmons, A., & Yoder, L. (2013). Military Resilience: A Concept Analysis. Nursing Forum, 48(1), 17–25. https://doi.org/10.1111/nuf.12007

Sinek, S. (2014). Leaders Eat Last: Why Some Teams Pull Together and Others Don't (1st ed.). Penguin Group.

Sládek, P., Ullrich, D., Lacinová, V., & Melichovský, F. (2021). The Specific Suitable Methods for Developing of Psychophysical Fitness and Decision-Making Skills of Managers. 11(1), 298–302. https://doi.org/10.33543/1101

Sørensen, K. M., Boe, O., & Lund, P. E. (2026). Exploring the combat mindset approach during a major prison riot. Frontiers in Psychology, 17. https://doi.org/10.3389/fpsyg.2026.1738405

Steinborn, M. B., Maximilian, J., S Rodrigues, P. F., R E Brown, S. B., & Passi, T. (2022). Effects of overnight military training and acute battle stress on the cognitive performance of soldiers in simulated urban combat.

Stergiou, M., Aladro-Gonzalvo, A. R., Tornero-Aguilera, J. F., Robles-Pérez, J. J., Fernández-Lucas, J., & Clemente-Suárez, V. J. (2024). Influence of Combat Experience on Psychophysiological and Fine Motor Skill Responses in Air Force Warfighters under Acute Stress. Romanian Journal of Military Medicine, 127(5), 331–340. https://doi.org/10.55453/rjmm.2024.127.5.1

Stouffer, S., Lumsdaine, A., Lumsdaine, M., Williams, R., Smith, M., Janis, I., Star, S., & Cottrell, L. (1949). The American Soldier:Combat and Its Aftermath. Social Psychology in World War II, II, 173–175. https://doi.org/10.1177/000271624926500124

Sweeney, P. (2007). Trust The key to combat leadership. In Leadership lessons from West Point (pp. 252–277). John Wiley & Sons, Inc.

Sweeney, P. (2010). Do soldiers reevaluate trust in their leaders prior to combat operations? Military Psychology, 22(SUPPL. 1). https://doi.org/10.1080/08995601003644312

Sweeney, P., Thompson, V., & Blanton, H. (2009). Trust and Influence in Combat: An Interdependence Model. Ournal of Applied Social Psychology, 39(1), 235–264. https://doi.org/10.1111/j.1559-1816.2008.00437.x

Thayer, J., Åhs, F., Fredrikson, M., Sollers, J., & Wager, T. (2012). A meta-analysis of heart rate variability and neuroimaging studies: Implications for heart rate variability as a marker of stress and health. In Neuroscience and Biobehavioral Reviews (Vol. 36, Number 2, pp. 747–756). https://doi.org/10.1016/j.neubiorev.2011.11.009

Thayer, J., & Sternberg, E. (2006). Beyond heart rate variability: Vagal regulation of allostatic systems. Annals of the New York Academy of Sciences, 1088, 361–372. https://doi.org/10.1196/annals.1366.014

Ullrich, D. (2017). Kompetence velitele - Leadera. UNOB.

Ullrich, D. (2022). Leadership a stres (1st ed.). Powerprint.

Ullrich, D., Sládek, P., Zezula, J., & Trnková, T. (2020). Selected Aspects of Today's Leaders and their Potential Development. 36th IBIMA Conference Proceedings.

U.S. Army Command and General Staff College. Center for Army Leadership (Calif.). (2004). The US Army Leadership field manual (FM 22-100). McGraw-Hill.

Wagstaff, W. A. (2019). Organizing evaluation: Assessing combat leadership quality. Journal of Theoretical Politics, 31(2), 132–155. https://doi.org/10.1177/0951629819833177

Wansink, B., Payne, C., & van Ittersum, K. (2008). Profiling the heroic leader: Empirical lessons from combat-decorated veterans of World War II. Leadership Quarterly, 19(5), 547–555. https://doi.org/10.1016/j.leaqua.2008.07.010

Werner E., & Brendtro L. (2012). Risk, Resilience, and Recovery. Reclaiming Children and Youth, Bloomington, 21(1), 18–22.

Yellin, K. (2008). Battle Exhortation: The Rhetoric of Combat Leadership (Reprint (2011)). University of South Carolina Press.

Materiality Assessment as a Governance Lens for the Twin Transition: A Cross-sector Analysis

Nicoletta Maria Strollo, Tamara Menichini and Stefania Roberta Miccoli
Department of Engineering, University of Rome Niccolò Cusano, Rome, Italy

nicolettamaria.strollo@unicusano.it
tamara.menichini@unicusano.it
stefaniaroberta.miccoli@unicusano.it

Abstract: The European Union's Twin Transition agenda encourages organizations to integrate both digitalization and circular economy principles into their core sustainability strategies. How companies reflect these two dimensions through their materiality processes and how stakeholder engagement contributes to such prioritization represents a rich area for empirical investigation. This study examines how Italian sustainability leaders operationalize the twin transition through materiality assessment and CEO strategic communication, using content analysis of sustainability reports published by Sustainability Leader companies across different sectors: service-oriented sectors and manufacturing-intensive sectors. The analytical framework operates at two complementary levels: materiality assessment, explored through explicit topic identification, disclosure depth, and the relationship between stakeholder engagement and materiality outcomes; and CEO letters, examined as strategic signaling instruments that reveal which twin transition themes top management considers most salient. Findings reveal a systematic cross-sector pattern in how circular economy and digital transformation are embedded as material topics, shaped by sector-specific strategic and regulatory contexts. CEO messages further illuminate the strategic framing of twin transition priorities, offering insight into the narratives through which leaders anchor sustainability commitments. Stakeholder engagement quality appears broadly consistent across sectors, suggesting that thematic differentiation is driven more by industry-specific pressures than by differences in engagement practices. These patterns offer valuable insights into how materiality processes and executive communication jointly translate the twin transition agenda into corporate sustainability priorities, and what this implies for the inclusiveness and balance of sustainability decision-making among acknowledged reporting leaders. The study contributes to the governance and ESG literature by advancing understanding of materiality assessment and CEO communication as interconnected strategic governance instruments.

Keywords: Materiality assessment, Twin transition, Circular economy, Stakeholder engagement, ESG reporting

1. Introduction

The European Union's Twin Transition agenda, which simultaneously pursues green and digital transformation, has positioned Circular Economy (CE) principles and Digitalization (DT) as two key pillars of the corporate sustainability mandate. Whether companies acknowledged as sustainability leaders genuinely integrate both dimensions into their materiality assessments, or whether they systematically foreground the dimension most aligned with their sector's operational logic, constitutes an empirically underexplored and governance-relevant question (Garst et al., 2022). The Corporate Sustainability Reporting Directive (CSRD, 2022/2464/EU) and the European Sustainability Reporting Standards (ESRS) formalizes the twin transition expectation through a double-materiality logic, requiring companies to assess topics for both their societal and environmental impact and their financial relevance (Muench et al., 2022; Hammerschmidt, 2025). The corporate accountability literature has, however, long documented persistent gaps between sustainability rhetoric and substantive disclosure (Sisdyani et al., 2025; Tariq, 2025), and recent evidence suggests that materiality processes may still be shaped more by sector convenience than by genuine stakeholder-driven prioritization (Giacomini et al., 2025). Whether acknowledged leaders are genuinely meeting this dual obligation across both CE and DT remains, therefore, a consequential and largely unexamined question in the Italian context. This study addresses this gap through content analysis (Mayring, 2004) of 43 sustainability reports from companies listed in the Il Sole 24 Ore Sustainability Leaders ranking. An original codebook is developed to operationalize CE and DT disclosure depth and engagement quality across twelve ordinal variables, enabling systematic comparison across four sectors. The four sectors were selected to represent contrasting industry contexts along the Twin Transition spectrum. Specifically, Banking and Insurance represent service-oriented sectors in which digital technologies constitute the primary operational infrastructure and a key source of competitive advantage (Casu and Girardone, 2025). Chemistry and Automotive Supply Chain represent manufacturing-intensive sectors, where production processes are directly exposed to raw material constraints, waste regulation, and carbon pricing (Carbonell, 2024; Bühler et al., 2025). As a result, CE practices are expected to play a more central operational role. Materiality assessment in the Twin Transition context sits at the intersection of two conflicting logics: the GRI principle of stakeholder inclusiveness requires material topics to emerge from meaningful engagement (GRI 1, 2021), yet sector affiliation rather than stakeholder input is often the strongest predictor of disclosure content

(Hahn and Kühnen, 2013). These tensions call for explicit theoretical framing, and this study integrates three complementary lenses. Stakeholder Theory (Freeman, 1984) holds that material topics should emerge from the concerns of those affected by the firm; Institutional Theory, through the concept of coercive, mimetic, and normative isomorphism (DiMaggio and Powell, 1983), predicts a countervailing force: organisations converge on sector-specific reporting conventions, so that materiality may mirror field-level legitimacy pressures rather than stakeholder salience, consistent with Hahn and Kühnen (2013), who identify sector affiliation as among the strongest determinants of disclosure content. Legitimacy Theory (Suchman, 1995; Deegan, 2002) adds that disclosure can be deployed symbolically to secure social approval, decoupling reported commitment from substantive practice (Meyer and Rowan, 1977; O'Dwyer, 2005).

Each lens maps onto a distinct research question:

- *RQ1: To what extent do Italian sustainability leaders identify CE and DT as material topics, and with what depth of disclosure in terms of sub-themes, terminology, and quantified targets?*
- *RQ2: Do systematic cross-sector patterns emerge in CE versus DT disclosure depth?*
- *RQ3: Are sustainability leaders genuinely inclusive in their materiality decision-making, as evidenced by stakeholder engagement depth and its integration into materiality outcomes?*

Stakeholder Theory frames the normative expectation tested in RQ3 since engagement should shape materiality outcomes while Institutional Theory accounts for the sector-specific patterns examined in RQ1 and RQ2, where sector affiliation, not engagement, appears to drive disclosure. Legitimacy Theory explains the mechanism (symbolic, decoupled engagement) through which this tension between stakeholder-driven expectation and institutionally patterned outcome is resolved in practice. The remainder of the paper follows this logic: Section 2 completes the theoretical background; Section 3 presents the methodology; Section 4 reports results, organised around the three RQs; Section 5 discusses the findings against the three theoretical lenses just introduced and their implications, and concludes.

2. Theoretical Background

Materiality in sustainability reporting has evolved from single materiality (financial relevance) to double materiality, which considers both financial implications and organisations' societal and environmental impacts (European Commission, 2019). GRI 3 (2021) defines a topic as material if it reflects significant impact or poses financial risk. Implementation remains uneven across organisations. Farooq et al. (2021) find that the quality of materiality assessment disclosures is highly heterogeneous, varying according to firm size, sector, and the degree of GRI adoption.

As materiality assessment has become a cornerstone of sustainability reporting, scholars have increasingly employed content analysis to evaluate how organisations disclose and prioritise material topics. Content analysis is the dominant methodology for operationalising disclosure depth (De Villiers and Van Staden, 2006), typically relying on ordinal scoring systems to measure disclosure along a continuum from no disclosure to comprehensive reporting. Nevertheless, disclosure quality remains highly variable, even among recognised sustainability leaders (Giacomini et al., 2025). Among the sustainability issues increasingly recognised as material, the CE has become a foundation of European environmental policy, formalised in the Circular Economy Action Plan (European Commission, 2020) and embedded in ESRS E5. CE encompasses strategies ranging from waste reduction and recycling to industrial symbiosis and regenerative design (Geissdoerfer et al., 2017; Menichini et al, 2026). Its materiality, however, differs across sectors. For manufacturing industries, CE is operationally central, whereas for financial services it is addressed more indirectly through financed emissions and portfolio decarbonisation (UNEP FI, 2021; Moneva et al., 2023). Alongside CE, digital transformation (DT), encompassing artificial intelligence, the Internet of Things (IoT), cloud computing, and cybersecurity, has emerged as a material sustainability topic in its own right (Vial, 2019; Menichini and Strollo, 2024). Regulatory frameworks such as the Digital Operational Resilience Act (DORA, 2022) and the General Data Protection Regulation (GDPR) elevate cybersecurity and data governance to board-level risk issues for financial institutions. In industrial sectors, by contrast, Industry 4.0 technologies primarily reshape production efficiency with a significant sector-dependent framing (Menichini et al., 2024); Varriale et al. (2025) confirm the cross-sectoral relevance of digital transformation as an enabler of SDG achievement, with implications for how DT is prioritised within corporate sustainability strategies. Importantly, CE and DT should not be viewed as independent dimensions. The European Union's Twin Transition framework (European Commission, 2021) conceptualises the two as mutually reinforcing, with digital technologies enabling circular business models while circular principles promote the sustainability of digital infrastructures (Hammerschmidt, 2025; Muench et al., 2022). Despite this

growing conceptual convergence, empirical evidence examining whether companies disclose both dimensions with comparable depth remains limited. CE and Industry 4.0 practices are increasingly co-deployed, though disclosure coherence remains heterogeneous across sectors (Sisdyani et al., 2025; Tariq, 2025). The challenge is embedded within the broader concept of corporate accountability, which requires organisations to account to society for the consequences of their actions (Odongo and Wang, 2018). Consistent with this perspective, the GRI principle of stakeholder inclusiveness requires material topics to be identified through meaningful stakeholder engagement (GRI 1, 2021) thus raising a fundamental question: does sustainability leadership reflect substantive stakeholder inclusiveness or merely procedural compliance with reporting standards? The distinction echoes a broader debate on the relationship between disclosure quality and genuine commitment: volume and completeness can decouple from substantive outcomes (Calabrese et al., 2020). Hahn and Kühnen (2013) identify sector affiliation as one of the strongest predictors of sustainability disclosure, suggesting that sector-specific logics outweigh stakeholder-driven prioritisation even among advanced reporters.

3. Methodology

The sample consists of 43 Italian companies listed in the 'Il Sole 24 Ore 2024 Sustainability Leaders' list (https://lab24.ilsole24ore.com/leader-sostenibilita/2024), which identifies companies distinguished for reporting quality and sustainability practices through an independent panel assessment. Inclusion provides an externally validated signal of sustainability leadership. All companies had published a GRI-aligned sustainability report or Non-Financial Statement (NFS) for reference year 2023. The selected sample spans four sectors: Banking (n = 28, 65.1%), Insurance (n = 5, 11.6%), Chemistry (n = 6, 14.0%), and Automotive supply chain (n = 4, 9.3%). Banking overrepresentation reflects the Italian NFS reporting landscape, where financial institutions are the most prolific mandatory reporters under Legislative Decree 254/2016. Following Mayring's (2004) approach to content analysis, which enables the systematic extraction of meanings and patterns from texts while combining quantitative scoring with qualitative contextual interpretation, the coding frame is structured around three dimensions: CE, DT, and Stakeholder Engagement (SE). Four variables are defined per dimension. Each dimension is operationalized through ordinal variables specifying scoring anchors, data sources, and operationalization (Table 1).

Table 1: Codebook

Dimension	Variable	Data source	Weight	Scale	Operationalization
CE	CE_presence	Materiality section	35%	0–2	0 = absent (no CE reference in materiality section); 1 = implicit (environmental topics cited without CE label; e.g., energy efficiency, carbon emissions, …); 2 = explicit ("CE" or equivalent named as a material topic)
CE	CE_subtopics	Materiality section	25%	0–3	0 = none; 1 = 1 sub-theme; 2 = 2–3 sub-themes; 3 = ≥4 sub-themes. Reference sub-themes (each counted once). E.g., waste/recycling; energy/renewables; carbon/Scope 3/decarbonization; supply chain; resource efficiency; mobility; production/manufacturing; water; …
CE	CE_keywords	Materiality section + CEO letter to stakeholders	20%	0–3	0 = none; 1 = 1–2 distinct keywords; 2 = 3–5; 3 = ≥6. Counted across materiality section and letter to stakeholders. e.g., circular economy, net zero, LCA, Scope 3, decarbonization, recycling, EU taxonomy, life cycle, biomass, etc…
CE	CE_targets	Materiality section	20%	0–2	0 = none; 1 = generic environmental goal or SDG 12/13 cited without specific KPI; 2 = quantified CE KPI with year
DT	DT_presence	Materiality section	35%	0–2	0 = absent; 1 = implicit (technology topics cited without DT label, e.g., cybersecurity, privacy, generic innovation); 2 = explicit ("digitalization", "Industry 4.0" or equivalent named as a material topic)
DT	DT_subtopics	Materiality section	25%	0–3	0 = none; 1 = 1 sub-theme; 2 = 2–3 sub-themes; 3 = ≥4 sub-themes. Reference sub-themes (each counted once). E.g., cybersecurity/data protection; digital services/platforms; AI/automation/RPA; cloud/IoT/blockchain; fintech/open banking; innovation/R&D; Industry 4.0; …

Dimension	Variable	Data source	Weight	Scale	Operationalization
DT	DT_keywords	Materiality section + CEO letter to stakeholders	20%	0–3	0 = none; 1 = 1–2 distinct keywords; 2 = 3–5; 3 = ≥6. Counted across materiality section and letter to stakeholders. E.g., digitalization, artificial intelligence, cybersecurity, blockchain, IoT, machine learning, digital twin, …
DT	DT_targets	Materiality section	20%	0–2	0 = none; 1 = generic technology goal or SDG 9 cited without specific KPI; 2 = quantified DT KPI with numeric value and target year
SE	SE_methods	Stakeholder Engagement section	40%	0–16	Additive score: • one-to-one interviews +3 • focus group/workshop +3 • advisory panel, stakeholder council +3 • governance body involvement (Board of Directors, committee) +2 • survey/questionnaire online +2 • informal dialogue/listening +1 (if not already counted above) • benchmark/desk analysis +1 • social media/events/dedicated tools +1
SE	SE_specificity	Stakeholder Engagement section	30%	0–4	0 = absent (col empty); 1 = engagement mentioned, no process detail; 2 = method described, no participant or result detail; 3 = method + stakeholder categories + themes emerged or link to materiality; 4 = method + stakeholders + timing + sample size + results + explicit link to materiality prioritisation
SE	SE_n_groups	Stakeholder Engagement section	20%	0–7	Count of distinct stakeholder categories engaged. Near-synonyms merged into one category each. E.g., employees; clients/customers; suppliers/partners; shareholders/investors; institutions/regulators; local community; trade unions; media; industry associations; agents/distributors; governance/management; …
SE	SE_integration	Stakeholder Engagement section	10%	0–2	0 = no link between engagement and materiality stated; 1 = engagement stated as informing materiality without mechanism explained; 2 = explicit prioritization mechanism described (e.g., weighting, ranking adjustment, threshold)

Composite indices are calculated as weighted sums of normalised sub-variable scores:

Score CE = (CE_presence/2 × 0.35) + (CE_subtopics/3 × 0.25) + (CE_keywords/3 × 0.20) + (CE_targets/2 × 0.20)

Score DT = (DT_presence/2 × 0.35) + (DT_subtopics/3 × 0.25) + (DT_keywords/3 × 0.20) + (DT_targets/2 × 0.20)

Score SE = (SE_methods/16 × 0.40) + (SE_specificity/4 × 0.30) + (SE_n_groups/7 × 0.20) + (SE_integration/2 × 0.10)

The weight assigned to presence variables (35%) reflects the theoretical primacy of whether a topic is identified as material at all, consistent with Farooq et al. (2021). Weights for remaining sub-variables follow the principle of diminishing specificity. The coding process was conducted by three members of the research team, each coding the full set of reports independently. Inter-coder reliability was assessed using Krippendorff's α, with an acceptable threshold set at ≥ 0.70 (Krippendorff, 2004). The obtained value exceeded this threshold, indicating high agreement among coders. Discrepancies were discussed and resolved through structured consensus before finalising the coding. Construct validity was supported by anchoring scale levels to specific textual evidence and cross-referencing against the structured dataset.

4. Results

4.1 Descriptive Statistics by Sector

Table 2 presents mean scores and standard deviations by sector. Across the full sample, Score CE averages 0.470 (SD = 0.269), Score DT 0.548 (SD = 0.246), Score SE 0.428 (SD = 0.148). Italian sustainability leaders disclose more deeply on DT than on CE on average, with moderate and broadly homogeneous engagement quality across sectors.

Table 2: Descriptive statistics — Score CE, Score DT, Score SE by sector

Sector	n	Score CE mean (SD)	Score DT mean (SD)	Score SE mean (SD)	CE vs DT pattern
Banking	28	0.384 (0.240)	0.616 (0.216)	0.430 (0.145)	DT > CE (gap = −0.232)
Insurance	5	0.440 (0.167)	0.500 (0.314)	0.472 (0.141)	Balanced (gap = −0.060)
Chemistry	6	0.750 (0.148)	0.372 (0.203)	0.346 (0.120)	CE > DT (gap = +0.378)
Automotive supply	4	0.688 (0.361)	0.392 (0.289)	0.482 (0.212)	CE > DT (gap = +0.296)
Full sample	43	0.470 (0.269)	0.548 (0.246)	0.428 (0.148)	DT > CE overall

SD = standard deviation. Pattern: CE vs DT gap ≥ 0.10 defines direction; 'Balanced' = |gap| < 0.10.

4.2 Cross-sector Patterns (RQ2)

The most striking finding is a systematic inverse pattern between Score CE and Score DT across the four sectors. Banking presents the lowest CE score (0.384) alongside the highest DT score (0.616), a gap equal to −0.232 points. The pattern is consistent across sector logic: banking institutions predominantly identify digital transformation, cybersecurity, and data protection as material topics, while CE identification is absent or implicit in a majority of reports. Explicit CE identification as a material topic (CE_presence = 2) was found in only 18.6% of companies overall, and in just 10.7% of banking companies specifically. Insurance sits close to the CE = DT diagonal with a gap equal to −0.060, qualifying as Balanced under the ±0.10 threshold. The inverse pattern is equally consistent in Chemistry and Automotive supply chain, where CE scores are the highest in the sample (0.750 and 0.688) and DT scores are moderate.

4.3 Disclosure Depth (RQ1)

Addressing RQ1, explicit DT identification as material (DT_presence = 2) is achieved by 62.8% of companies; only 14.0% score zero. For CE, only 18.6% achieve explicit identification, while 20.9% show no CE content in their materiality section. CE sub-theme breadth averages 1.7 across the full sample, with most companies addressing one to two distinct CE themes, typically energy efficiency and carbon emissions. Quantified CE-specific targets (CE_targets = 2) remain the exception. DT sub-theme breadth averages 1.5, with most banking companies covering cybersecurity plus one or two additional themes.

4.4 Sector Visualisation

Figure 1 illustrates the sector-level CE–DT trade-off. Each large bubble represents a sector centroid; bubble size encodes the mean Score SE; Score CEO values annotate each centroid; a dashed diagonal marks the CE = DT equality reference. Banking and Insurance cluster above-left of the diagonal (high DT, low-to-moderate CE), while Chemistry and Automotive supply chain sit below-right (high CE, low DT). No sector centroid falls in the lower-left quadrant, indicating that all four sectors address at least one twin-transition dimension meaningfully.

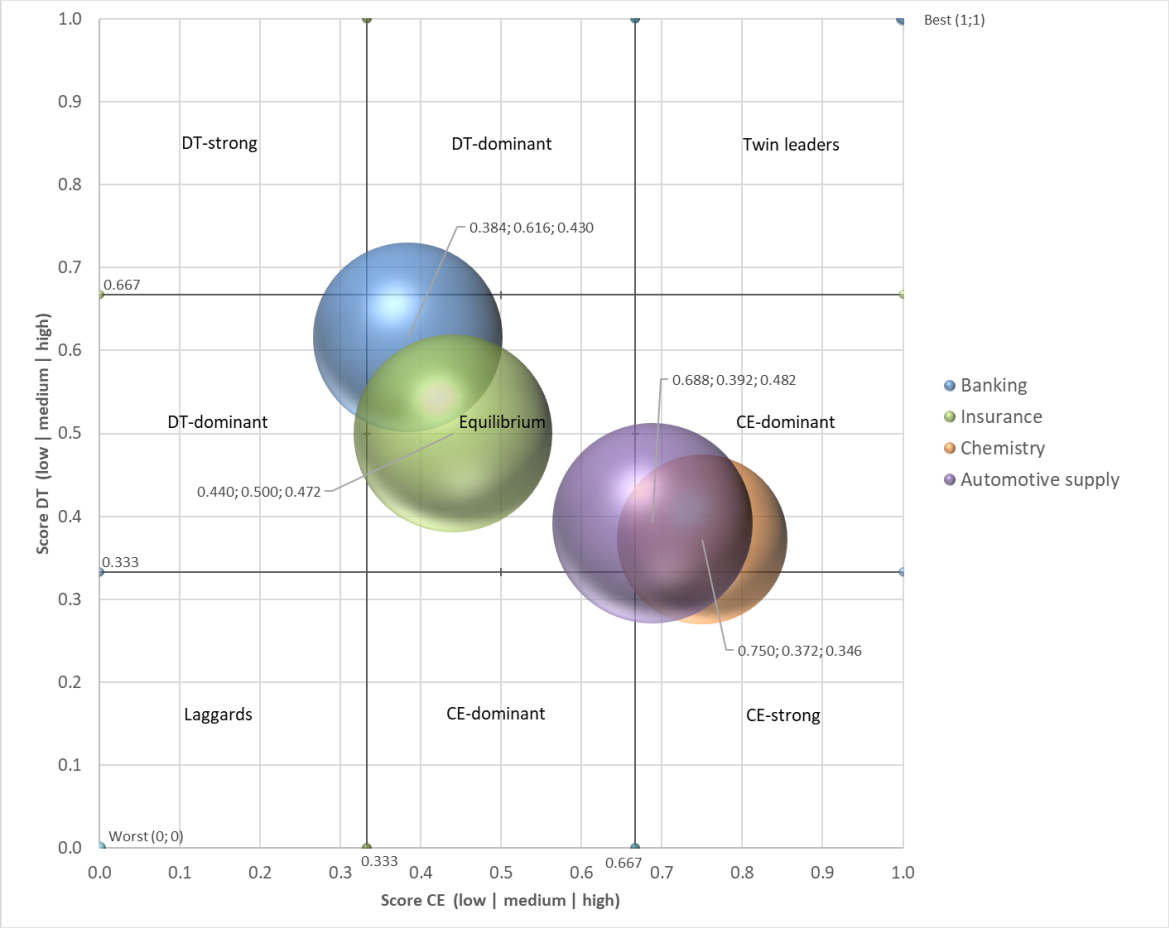


Figure 1: Sector bubble chart; mean Score CE (x-axis) vs mean Score DT (y-axis); bubble size = mean Score SE

4.5 Corporate Accountability and Stakeholder Inclusiveness (RQ3)

The relative homogeneity of Score SE across sectors, ranging from 0.346 (Chemistry) to 0.482 (Automotive supply chain), carries significant implications for corporate accountability. If engagement quality were the primary driver of material topic selection, sectors with deeper engagement would show more balanced CE–DT profiles. The absence of this pattern suggests that engagement processes in Italian sustainability leaders may be designed to validate pre-existing strategic narratives rather than to genuinely surface stakeholder concerns that challenge sector convenience. This is consistent with Farooq et al. (2021) and with the critical accounting literature on the formal use of stakeholder dialogue (O'Dwyer, 2005), and echoes recent findings that stakeholder engagement quality remains variable even among formally committed sustainability reporters (Giacomini et al., 2025). The inclusiveness question is particularly acute in Banking. Banking institutions engage on average 5 distinct stakeholder categories, among the widest in the sample, yet their CE disclosure depth is the lowest across all sectors (Score CE = 0.384). This divergence suggests that engagement breadth, namely who is formally consulted, does not translate into engagement depth, namely whether outcomes genuinely reshape materiality priorities (Saraswati et al., 2024). For sustainability leadership to be credible under a corporate accountability lens, engagement outcomes must demonstrably influence the content of materiality maps, including the elevation of cross-cutting topics such as CE that are increasingly demanded by regulators, institutional investors, and civil society (Bellucci et al., 2019).

5. Discussion and Conclusion

This study provides the first systematic, multi-sector evidence on CE and DT disclosure depth among Italian sustainability-reporting leaders, interpreted through the tension between stakeholder-driven inclusiveness and institutionally patterned, legitimacy-seeking disclosure. Three contributions, each mapped to a research question and its corresponding theoretical lens, follow. First (RQ1), the study establishes that explicit CE identification is achieved by only 18.6% of companies compared with 62.8% for DT, revealing a substantial materiality gap. The finding extends previous European evidence that CE remains weakly embedded in corporate

materiality assessments outside manufacturing-intensive sectors (Opferkuch et al., 2022; Vitolla et al., 2023). Institutional Theory explains this pattern: reporters disclose the Twin Transition dimension expected within their sector rather than covering both with comparable depth (DiMaggio and Powell, 1983). Second (RQ2), the analysis documents a systematic CE–DT sector trade-off, showing that sector affiliation rather than engagement quality drives disclosure depth. Banking and Insurance prioritise DT because digital governance, cybersecurity, and data protection are directly shaped by regulatory requirements, whereas Chemistry and Automotive supply-chain firms emphasise CE due to exposure to material efficiency, waste management, and carbon costs, confirming that sector affiliation drives disclosure content even among sustainability leaders (Hahn and Kühnen, 2013). Finally (RQ3), the study reveals that engagement breadth does not necessarily translate into balanced accountability. Banking institutions engage the widest range of stakeholders yet display the lowest CE disclosure depth, indicating that extensive engagement may legitimise existing priorities without materially reshaping disclosure agendas. The finding disconfirms the normative expectation set out by Stakeholder Theory (Freeman, 1984), namely that broader stakeholder involvement should translate into more balanced materiality outcomes. Read through Legitimacy Theory, the gap is better explained as decoupling (Meyer and Rowan, 1977): engagement functions here as a symbolic practice that secures procedural legitimacy without reshaping substantive disclosure priorities, consistent with evidence that stakeholder engagement disclosure often has little real effect on overall reporting quality (Dewi et al., 2023).The three findings show that the tension between stakeholder-driven inclusiveness and institutionally patterned, legitimacy-seeking disclosure, framed in Section 2, is resolved in practice in favour of the latter: sector affiliation, not stakeholder input, drives what gets disclosed, and engagement operates largely as a legitimating device. CE and DT continue to be prioritised separately, raising the question of whether DT should be framed as a standalone material topic or an enabling capability (Singhania et al., 2025).

Acknowledgements

The authors acknowledge the S.C.I.R.E. Consortium for its support in the dissemination of the research outcomes presented in this paper.

Ethics Declaration: This research did not require ethical clearance.

AI Declaration: Artificial intelligence tools (Grammarly and Claude) were employed to ensure grammatical accuracy and to improve the clarity and style of the language.

References

Bellucci, M., Simoni, L., Acuti, D., and Manetti, G., 2019. Stakeholder engagement and dialogic accounting: Empirical evidence in sustainability reporting. Accounting, Auditing & Accountability Journal, 32(5), 1467-1499.

Berg, F., Kölbel, J.F. and Rigobon, R., 2022. Aggregate confusion: The divergence of ESG ratings. Review of finance, 26(6), pp.1315-1344.

Bühler, L., Schuster, T. and Pflaum, A. (2025). Twin Transformation—The case of smart circular economy in manufacturing industries: Insights from an umbrella review. *International Journal of Innovation Management*, 29(05n06), p.2540007.

Calabrese, A., Costa, R., Levialdi, N., Menichini, T., and Villazon Montalvan, R. A., 2020. Does more mean better? Exploring the relationship between report completeness and environmental sustainability. *Sustainability*, 12(24), 10635.

Cannizzaro, B. V., Piazza, A., Ghinoi, S., and Vasudevan, S., 2026. Institutional pressures and ESG disclosure similarity: an analysis of European shareholder letters. Management Decision, 64(13), 431-453.

Carbonell, J.S., 2024. In search of the twin transition: The limited performativity of the" green and digital" transitions in the European automotive industry (No. 2024/05). *JRC Working Papers Series on Labour, Education and Technology*.

Castro-Lopez, A., Iglesias, V., and Santos-Vijande, M. L., 2023. Organizational capabilities and institutional pressures in the adoption of circular economy. *Journal of business research*, *161*, 113823.

Casu, B. and Girardone, C., 2025. From deregulation to the twin transition: exploring banking strategies for sustainability and digitalisation. International *Journal of Banking, Accounting and Finance*, 15(1-2), pp.139-163.

Cho, C. H., Laine, M., Roberts, R. W., and Rodrigue, M., 2015. Organized hypocrisy, organizational façades, and sustainability reporting. *Accounting, organizations and society*, *40*, 78-94.

De Villiers, C. and Van Staden, C.J., 2006. Can less environmental disclosure have a legitimising effect? Evidence from Africa, *Accounting, Organizations and Society*, Vol. 31, No. 8, pp. 763–781.

Deegan, C., 2002. Introduction: The legitimising effect of social and environmental disclosures – a theoretical foundation. *Accounting, Auditing & Accountability Journal*, 15(3), pp.282–311.

Dewi, A.A., Saraswati, E., Rahman, A.F. and Atmini, S., 2023. Materiality, stakeholder engagement disclosure, and corporate governance: Critical elements for the quality of sustainability reporting. *Cogent Business & Management*, 10(1), p.2175437.

DiMaggio, P.J. and Powell, W.W., 1983. The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), pp.147–160.

Eccles, R. G., and Krzus, M. P., 2018. Why companies should report financial risks from climate change. *MIT Sloan Management Review*, *59*(3), 1-6.

European Commission, 2019. Guidelines on Non-Financial Reporting: Supplement on Reporting Climate-Related Information (2019/C 209/01), *Official Journal of the European Union*, Brussels.

European Commission, 2020. A New Circular Economy Action Plan — For a Cleaner and More Competitive Europe, COM(2020) 98 final, *European Commission*, Brussels.

European Commission, 2021. The Twin Transition: Digital and Green, Joint Research Centre Science for Policy Report, *Publications Office of the European Union,* Luxembourg.

European Parliament and Council, 2022. Directive 2022/2464/EU on Corporate Sustainability Reporting (CSRD), Official Journal of the European Union, Brussels.

Farooq, M.B., Zaman, R., Sarraj, D. and Khalid, F., 2021. Examining the extent of and drivers for materiality assessment disclosures in sustainability reports. *Sustainability Accounting, Management and Policy Journal*, Vol. 12, No. 5, pp. 965–1002.

Freeman, R.E., 1984. Strategic Management: A Stakeholder Approach, Pitman, Boston.

Garst, J., Maas, K. and Suijs, J., 2022. Materiality assessment is an art, not a science: Selecting ESG topics for sustainability reports. *California Management Review*, 65(1), pp.64-90.

Geissdoerfer, M., Savaget, P., Bocken, N.M. and Hultink, E.J., 2017. The Circular Economy–A new sustainability paradigm?. Journal of cleaner production, 143, pp.757-768.

Giacomini, D., Rocca, L. and Tonoli, D., 2025. Exploring materiality and stakeholder engagement in European water utilities' sustainability strategies, organizational practices, and reporting. *Business Strategy and the Environment*, 34(2), pp.2607-2629.

GRI Standards, 2021. GRI 1: Foundation 2021, Global Reporting Initiative, Amsterdam. https://www.globalreporting.org/pdf.ashx?id=12334

GRI Standards, 2021. GRI 3: Material Topics 2021, Global Reporting Initiative, Amsterdam. https://globalreporting.org/pdf.ashx?id=12453

Gromis di Trana, M., Fiandrino, S., Tonelli, A., and Devalle, A., 2024. The interplay between stakeholder engagement and sustainability materiality assessment: A circular perspective. Social Responsibility Journal, 20(10), 2100-2118.

Hahn, R. and Kühnen, M., 2013. Determinants of sustainability reporting: A review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production*, 59, pp.5-21.

Hammerschmidt, J., 2025. Navigating the twin transformation: How digitalization and sustainability shape the future, *Strategic Change*, Vol. 34, No. 5, pp. 1–15.

Heras-Saizarbitoria, I., Arana-Landín, G., Díez-Treviño, L. and Molina-Azorín, J.F., 2023a. Circular economy at the company level: An empirical study based on sustainability reports. Sustainable Development, 31(2), pp.1027–1040.

Heras-Saizarbitoria, I., Boiral, O. and Testa, F., 2023b. Circular economy at the company level: An empirical study based on sustainability reports. *Sustainable Development*, *31*(4), pp.2307-2317.

Krippendorff, K., 2004. Content Analysis: An Introduction to its Methodology, 2nd ed., Sage Publications, Thousand Oaks.

Machado, B. A. A., Dias, L. C. P., and Fonseca, A., 2021. Transparency of materiality analysis in GRI-based sustainability reports. Corporate Social Responsibility and Environmental Management, 28(2), 570-580.

Mayring, P., 2004. Qualitative content analysis. *A Companion to Qualitative Research*, 1, 159-176.

Menichini, T., Brogi, S. and D'Uffizi, A., 2026. Circularity Beyond Recycling: Unlocking Resource Value Retention in Business Innovations for Responsible Production and Consumption. *Corporate Social Responsibility and Environmental Management. In production.* 10.1002/sd.71513

Menichini, T., Salierno, G. and Strollo, N.M., 2024, November. Digital transformation in the agri-food sector: A comparative analysis of Industry 4.0 innovations by Italian sustainability leaders. In *Proceedings of the 20th European Conference on Management, Leadership and Governance*, Lisbon, Portugal (pp. 14-15).

Menichini, T. and Strollo, N.M., 2024. An Evaluation Framework of Industry 4.0's Impact on SDGs and its Application to Al Reporting. In *Proceedings of The 19th European Conference on Management, Leadership and Governance*. Academic Conferences International.

Meyer, J. W., and Rowan, B., 1977. Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83(2), 340–363.

Moneva, J.M., Rialp-Criado, A., Rivera-Lirio, J.M. and Ortas, E., 2023. Sustainability reporting in view of the European sustainable finance taxonomy: Is the financial sector ready to disclose circular economy? Corporate Social Responsibility and Environmental Management, 30(1), pp.378–393.

Muench, S., Stoermer, E., Jensen, K., Asikainen, T., Forsans, N. and Scapolo, F. (2022) Towards a Green and Digital Future: Key Requirements for Successful Twin Transitions in the European Union, Publications Office of the European Union, Luxembourg.

O'Dwyer, B., 2005. Stakeholder democracy: Challenges and contributions from social accounting, Business Ethics: A European Review, Vol. 14, No. 1, pp. 28–41.

Odongo, N.H. and Wang, D., 2018. Corporate responsibility, ethics and accountability. *Social Responsibility Journal*, 14(1), pp.111-122.

Opferkuch, K., Caeiro, S., Salomone, R. and Ramos, T.B., 2022. Circular economy disclosure in corporate sustainability reports: The case of European companies in sustainability rankings. Sustainable Production and Consumption, Volume 32, pp.436-456.

Posadas, S. C., Ruiz-Blanco, S., Fernandez-Feijoo, B., and Tarquinio, L., 2023. Institutional isomorphism under the test of Non-financial Reporting Directive. Evidence from Italy and Spain. *Meditari Accountancy Research*, *31*(7), 26-48.

Saraswati, E., Rumansyah, M.A. and Dewi, A.A., 2024. Materiality and stakeholder engagement in sustainability reporting: does it matter? Business: Theory and Practice, 25(2), pp.397–405.

Singhania, M., Bhan, I. and Seth, S., 2025. Digitalisation and firm-level ESG performance and disclosures: A scientometric review and research agenda. International Journal of Finance & Economics, 30(4), pp.4212-4236.

Sisdyani, E.A., Sudana, I.P., Ardiana, P.A., Anandari, I.G.A.A.A., Yanthi, K.D.L., Uttari, R.A., Astiti, K.P. and Kedisan, A.A.V., 2025. Corporate responses to sustainability issues: are they rhetorical?. *Journal of Financial Reporting and Accounting*.

Suchman, M.C., 1995. Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20(3), pp.571–610.

Tariq, A., 2025. Mandatory sustainability reporting and the disclosure-performance gap: insights from the EU directive. *Meditari Accountancy Research*, 33(7), 536-567.

Torelli, R., Balluchi, F., and Furlotti, K., 2020. The materiality assessment and stakeholder engagement: A content analysis of sustainability reports. *Corporate Social Responsibility and Environmental Management*, 27(2), 470–484.

UNEP FI, 2021. Principles for Responsible Banking: Guidance on Target Setting for Financial Sector, United Nations Environment Programme Finance Initiative, Geneva.

Varriale, V., Camilleri, M.A., Cammarano, A., Michelino, F., Müller, J. and Strazzullo, S., 2025. Unleashing digital transformation to achieve the sustainable development goals across multiple sectors, *Sustainable Development*, Vol. 33, No. 1, pp. 565–579.

Vial, G., 2019. Understanding digital transformation: A review and a research agenda, *Journal of Strategic Information Systems*, Vol. 28, No. 2, pp. 118–144.

Vitolla, F., L'Abate, V., Petruzzella, F., Raimo, N. and Salvi, A., 2023. Circular economy disclosure in sustainability reporting: The effect of firm characteristics. *Sustainability*, 15(3), p.2200.

Integrating Stewardship into the Management and Leadership Paradigm for a Regenerative Future

Emőke Takács[1] and Toon Abcouwer[2]

[1]ERI Hungary - European Research Institute Hungary, Budapest, Hungary

[2]ERI Hungary - European Research Institute Hungary, Amsterdam, The Netherlands

t.emoke@eri.net.in
abcouwer@proton.me

Abstract: For several decades, global management discourse has been anchored in neoliberal doctrines that prioritise shareholder value and individual prosperity. This 'me-we' paradigm, focused on individual actors and organisations seeking to optimise welfare in a competitive, market-driven landscape, has proven structurally inadequate to address the escalating pressures of climate change, resource depletion, and social fragmentation. This paper advocates a profound paradigmatic transition towards a 'we-all' perspective, a governance model in which the collective common good prevails without compromising individual well-being. As a position paper, this work centres on conceptually reconstructing the governance triad: Management, Leadership, and Stewardship. By theoretically deconstructing these distinct cognitive orientations, the paper argues that while Management focuses on rationalisation and optimisation and Leadership on innovation and creativity, Stewardship provides the essential focus on future-orientation, continuity, and the responsible care of resources. Through this conceptual lens, we highlight that the essential challenge for modern organisations lies in balancing this triad to ensure that organisational self-interest remains subordinate to the general interest. Furthermore, the paper deconstructs the prevailing 'extractive' logic—the systematic taking of resources and labour without replenishment—and contrasts it with a regenerative economic model. It critically analyses the limitations of universal monetisation, particularly the 'financialisation of the Earth'. It argues that quantifying biodiversity and ecological functions in purely monetary terms collapses complex, non-linear systems into discrete commodities, reinforcing the anthropocentric and extractive mindsets that a regenerative economy seeks to replace. To facilitate this shift, the research calls for a fundamental re-evaluation of the dogmas of psychological ownership, absolute scarcity, and egocentrism. The paper concludes that integrating stewardship into institutional governance is not merely an ethical choice but a systemic necessity for survival in a physically finite world. By adopting a 'Me-We-All' approach, organisations can move beyond past destructive dogmas and foster a resilient society in which every action strengthens the system for future generations.

Keywords: Stewardship, Regenerative economics, Me-We-All paradigm, Circular green public procurement, Governance triad, Ecojustice

1. Introduction: The Neoclassical Framework and the Logic of Extractivism

Since the 1980s, global societal and organisational structures have been anchored in neoclassical and neoliberal doctrines (Palley, 2023). This ideological movement, vigorously initiated and cultivated by key political figures such as Ronald Reagan in the United States and Margaret Thatcher in the United Kingdom, has led to a profound restructuring of institutions (Maschette, 2026). Within this neoliberal paradigm, the prioritising of shareholder value, individual property, and personal prosperity is central. Analysed through the 'Me-We-All' framework of, this structure can be characterised as a dominant 'Me-We' mindset. Within this framework, individual actors ('Me') and discrete organisations ('We') focus primarily on optimising their own welfare and competitive advantage within a market-driven landscape, leaving the collective interest ('All') largely unaddressed.

This line of thinking aligns closely with what contemporary literature describes as extractivism (or extractionism) (Capitals Coalition, 2024; CE Delft, 2023; Mentcon, n.d.). Extractivism is the systematic economic logic of unilaterally extracting resources from nature and society, converting them into short-lived goods, and discarding them as worthless waste after use. This linear 'take-make-waste' chain treats the natural world as an inexhaustible source of free raw materials and a passive sink for the negative externalities of industrial production. The market-driven approach uses profit-maximisation-based economic thinking as the universal yardstick for societal success (Brand, 2022).

The structural deficiencies of this extractivist and neoliberal order are now obvious (Brand & Wissen, 2018). Through its blind focus on quarterly figures and individual capital accumulation, the model is inherently blind to the escalating, cumulative pressures of climate change, the depletion of vital natural resources, and widespread social fragmentation (Chancel et al., 2025). Because neoliberal 'Me-We' thinking refuses to recognise planetary boundaries and social foundations as hard limits, it destabilises the ecological and social systems it depends on for its own survival (Abcouwer, Takács, Schilstra, et al., 2022; Steffen et al., 2015).

1.1 The Need for a Paradigm Shift Towards Regenerative Thinking

The escalating crises of the Anthropocene, as the most recent geological epoch in the history of the Earth, during which humans have become the most influential species and are having a significant impact on the planet's climate and ecosystems, compel a fundamental paradigm shift, which is increasingly defined in scholarly literature as regenerative thinking (Crossreis, 2024; Hawken, 2021). Whereas traditional concepts of sustainability often limit themselves to minimising harm or maintaining a status quo (so-called 'net-zero' thinking), regenerative thinking strives to actively restore, revitalise, and strengthen both ecological and social systems. It represents a shift from merely exploiting reserves to building adaptive resilience (Meijering et al., 2020).

Within the 'Me-We-All' framework, embracing regenerative thinking means permanently abandoning the reductionist 'Me-We' paradigm in favour of a comprehensive 'We-All' paradigm. This transition requires a fundamental revision of organisational and governmental objectives. The emphasis must shift towards a governance model in which the collective common good- the well-being of the entire socio-ecological community prevails without compromising individual well-being. Regenerative thinking recognises that the individual ('Me') and the organisation ('We') cannot flourish if the broader context ('All') in which they operate collapses.

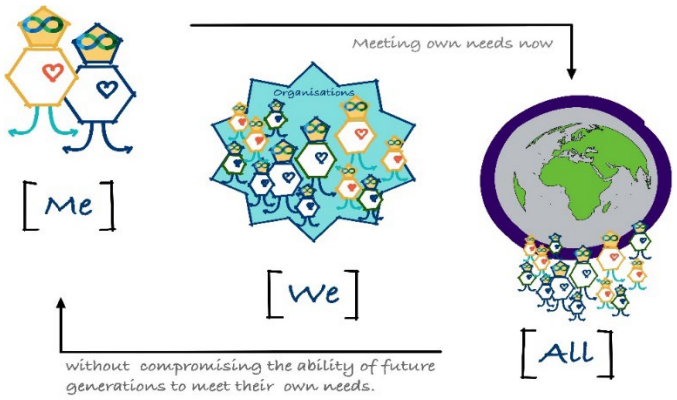


Figure 1: The 'Me-We-All' approach (Abcouwer, Takács, Schilstra, et al., 2022)

The model posits that healthy human and organisational development can occur only when embedded within vital, self-restoring natural and social systems (HEC Paris, 2025; Mentcon, n.d.; Regenerate Tampa Bay, 2025). But this doesn't mean that the individual is secondary within this triad. Here, the concept of eco-justice comes into play.

2. Ecojustice: Fair Distribution for all Living Beings and the Need for Circular Green Public Procurement

As society navigates the regenerative transition, it must extend the dialogue beyond the technical parameters of sustainability and circularity and actively embrace the concept of Ecojustice. Ecojustice defines the core values progressive institutions must aspire to, emphasising that genuine ecological equilibrium cannot exist in a vacuum. Rather, it is achieved only when resources and systemic values are distributed fairly and are equally accessible to all living beings (Martusewicz et al., 2014; Morrison, 2018; Washington et al., 2018).

Crucially, the ecological and social crises we currently face are not single-sourced; they are deeply entangled with intersecting systems of power, privilege, and marginalisation (Mikulewicz et al., 2023). Understanding these crises requires an intersectional lens that reveals how environmental injustices disproportionately affect vulnerable human communities while also threatening non-human life (Atapattu et al., 2021). Intersectionality shows that structural barriers to planetary health are compounded by overlapping systems of oppression, making it impossible to solve environmental issues without addressing social inequalities (Runyan, 2018). Dismantling these traditional divides between human progress and planetary health demands a long-term perspective that prioritises learning both from and for our natural environment. Translating ecojustice into a tangible societal reality requires a systemic restructuring of institutional cultures, a process spearheaded by joint

initiatives such as the European Union's Erasmus+ 'Lead for EcoJustice' project (Takács et al., 2024). This initiative ensures that deep sustainability is not treated as a secondary addition, but as the primary driving force of future societal systems. However, addressing these complex, intersectional problems ultimately requires that affected communities and institutions gain access to the relevant resources. Because the equitable allocation and acquisition of these resources is fundamentally a public issue, society must critically examine how they are procured.

As the world rapidly shifts toward regenerative thinking, Circular and Green Public Procurement (CGPP) emerges as a strategic and necessary instrument (Ortega Carrasco et al., 2024; Patrucco et al., 2024). Public procurement accounts for a substantial portion of global spending, giving governments and public institutions immense leverage to advance social justice and ecological restoration simultaneously. By embedding stringent sustainability criteria into public contracts, CGPP shifts from a mere administrative function to a catalyst for the circular economy, driving the market toward products and services with reduced environmental footprints throughout their life cycles. Realising a regenerative transition therefore relies heavily on utilising green procurement to ensure that public spending actively nourishes the 'We-All' ecosystem.

This necessary shift from extractive resource acquisition to regenerative public procurement highlights the limitations of traditional operational models. Consequently, this calls for a different view of management and leadership, requiring us to dig deeper into governance concepts to secure a resilient future.

3. Deconstructing the Traditional Distinction Between Management and Leadership

To understand why the current organisational landscape struggles with this regenerative transition, we need to deconstruct the dominant cognitive orientations within organisations. Classical organisation theory draws a sharp distinction between management and leadership. Lunenburg (2013) summarises this theoretical underpinning, arguing that management and leadership represent two fundamentally different yet complementary systems of action.

In this view, management focuses primarily on rationalisation, optimisation, and stability. The manager's core activities include planning, budgeting, detailing, controlling, and problem-solving to reduce uncertainty and maintain the existing order efficiently. Leadership, by contrast, aims to initiate change and cope with uncertainty. The leader focuses on formulating an inspiring vision, communicating and aligning people around it, and motivating and empowering employees to stimulate innovation and creativity.

Although these two approaches contrast in theory, in practice both management and leadership function exceptionally well within the logic of neoclassical and neoliberal thought (Bal & Dóci, 2018). Both concepts are deeply intertwined with the interests of individual organisations striving for market success and economic growth (Takács & Abcouwer, 2024). The manager optimises extractivist processes to maximise margins, whilst the leader drives the creative change necessary to pioneer new markets.

The fundamental problem of this traditional dichotomy is its limited temporal orientation. As a rule, both management and leadership focus on the short and medium term on solving the problems of today and tomorrow. The capacity to reason in terms of the day after tomorrow and the interests of future generations is virtually non-existent. Because neoliberalism has shortened the time horizon to the next reporting period, it systematically undervalues long-term aspects such as ecological stability and intergenerational justice. Consequently, the current governance paradigm lacks the cognitive tools to anticipate the long-term consequences of present actions. A structural solution must urgently be found for this deep-seated temporal and ethical shortcoming within management and leadership thinking. Studying who takes responsibility is crucial.

4. Responsibility and Governance: Towards Cooperation and Autonomy

The logical next question is who can and must bear responsibility for this long-term orientation, and which governance mechanism is relevant. To clarify this, a fruitful link can be made between Keidel (1995) thought-architecture model and De Geus’s (1989) political-philosophical organisational concepts.

Keidel's thought-architecture model posits that any organisational pattern and design can be understood as a dynamic balance among three fundamental variables: control, cooperation, and autonomy. This triad closely parallels the three classical organisational concepts De Geus’s (1989) distinguished, based on an analysis of 2500 years of political philosophers. In his doctoral dissertation, Organisatietheorie in de Politieke Filosofie (in Dutch), he distinguishes three organisational concepts:

1. ***Rational***: This concept aligns with Keidel's control variable. The emphasis here is on centralisation, strict hierarchy, formal rules, and top-down governance to guarantee uniformity and predictability.
2. ***Integrating***: This concept corresponds to Keidel's variable of cooperation. Here, collaborative decision-making, shared values, mutual interdependence, and the active integration of individual interest into the larger whole stand central.
3. ***Libertarian***: This concept reflects Keidel's variable of autonomy. The focus is on decentralisation, self-organisation, individual freedom, and creating 'spaces of freedom' in which actors can respond autonomously to their immediate context.

In contemporary organisational development, a clear shift is observable from the rigid rational/control concept towards a significantly higher appreciation of the integrating/cooperative and libertarian/autonomous concepts (Keidel, 1995). In a hyper-connected and dynamic world, we see a development towards a challenge that can be characterised as Open, Dynamic, Complex and Networked (Dorst, 2015). In such a challenging setting, the hierarchical control model fails because centrally led systems lack the necessary processing capacity to interpret complex, rapidly changing environmental signals.

Table 1: Paradigm shift in organisational designs

Organisational Variable (Keidel, 1995)	Organisational Concept (De Geus, 1989)	Characteristics and Decision-making	Role in the Paradigm shift from Extractivist to Regenerative
Control	Rational concept	Hierarchy, centralisation, top-down governance, rigid regulation	**Extractivist foundation:** Treats humans and nature as mechanical, controllable entities for the sake of efficiency
Cooperation	Integrating concept	Shared values, network relationships, reciprocity, collective responsibility	**Regenerative connector:** Facilitates the shift to 'We-All' thinking; builds social capital and ecological resilience
Autonomy	Libertarian concept	Self-organisation, decentralisation, flexibility, 'ordering of freedom'	**Regenerative adapter:** Enables local communities and teams to respond directly and organically to unique ecological contexts

This shift in organisational designs is inherently linked to the transition from an extractivist to a regenerative economy. Extractivism relies heavily on the rational organisational concept: it attempts to control, standardise, and exploit natural systems as if they were inanimate machines. This model is 'locked-in' by debt-based systems and legal structures prioritising shareholder value. In contrast, ‘regeneration’ (from 'generare') means ‘to create’, aims beyond sustainability, focusing on self-renewal and positive impacts on the biosphere and society, similar to natural systems' restorative processes (Central Bureau of Statistics, 2022). The goal is not just to do “less bad”, but to generate a net-positive impact on the biosphere and society (Mentcon, n.d.).

Conversely, a regenerative model requires actively integrating cooperation and autonomy (Abcouwer et al., 2024; Keidel, 1995). Because ecological and social systems are non-linear and complex, mechanical control cannot sustain them (Folke, 2006). Regenerative governance requires an integrating approach in which organisations understand themselves as part of a larger biological and societal network (ecosystem thinking), combined with the autonomy of local actors to act resiliently and adaptively (Yunibandhu & Hallinger, 2025).

5. Navigating the Transition: The Adaptive Cycle of Resilience as a Framework for Change

The transition to regeneration within the **Adaptive Cycle of Resilience (ACoR)** framework (Abcouwer, Takács, & Banga, 2022; Meijering et al., 2020) is illustrated by a lemniscate (infinity loop), explaining how social-ecological systems evolve through four distinct phases:

- **Equilibrium (Certainty):** The starting state of the extractive model where operations are optimised and managers work well within established norms (Want-Must-Can alignment (Heene, 2002)).
- **Challenge (Disturbance):** Internal or external disruptions (e.g., climate crisis, resource scarcity) move the system away from its certainty in existing abilities (Can).
- **New Combinations (Adaptation/Uncertainty):** A phase of creative search where leadership is required to find regenerative solutions and new ways of creating value.

- **Operationalisation:** Setting the new regenerative model into practice to reach a new, more resilient equilibrium.



Figure 2: The ACoR model (Takács & Abcouwer, 2024)

Within the ACoR framework, the adaptation process is driven by the "Want-Must-Can" dilemma (Heene, 2002). This involves balancing what stakeholders desire (Want), what ecological boundaries and regulations require (Must), and what resources and skills permit (Can).

5.1 Systemic Traps and the Role of Stewardship

Regenerative transitions are often obstructed by specific systemic traps within the adaptive cycle (Holling, 1996; Takács & Abcouwer, 2021):

- *Lock-in trap*: Management fails to perceive the ecological crisis or the "economic invisibility" of nature.
- *Poverty trap*: A lack of creativity or non-monetary metrics to develop circular business models.
- *Isolation trap*: The inability to align diverse stakeholders across the Me-We-All scales.
- *Rigidity trap*: Resistance to changing traditional extractive ownership and governance structures.

Dealing with these traps demands significant effort from those involved. They must contribute to the best of their abilities, operating in a world where the emphasis shifts from an individualistic focus to a more societal one. But how to measure the contribution the change realises in terms of regenerative thinking?

5.2 Extractivism versus Regenerative Thinking: The Limits of Universal Monetisation

A crucial challenge in the transition to regeneration is that many of the most valuable things, such as forests capturing carbon or pollination by bees, have traditionally been valued at zero in the market economy (Boell, 2015; Central Bureau of Statistics The Netherlands, 2025; Monbiot, 2014). This "economic invisibility of nature" creates perverse incentives in which destruction is more profitable than preservation (Boell, 2015; Monbiot, 2014).

The need to move away from the extractivist model becomes even more urgent when we critically analyse the so-called 'financialisation of the Earth'. Within the dominant neoclassical economic logic, it is argued that the ongoing destruction of biodiversity and ecosystems stems from the fact that nature has no market value. The proposed neoliberal solution is to assign a monetary price to 'ecosystem services', after which they can be traded via market mechanisms, such as carbon credits, biodiversity offsets, and 'natural asset companies'. While proponents argue that monetary valuation is the only way to give nature a voice in the boardroom, critics warn that pricing nature paves the way for complete commodification (Boell, 2015; Monbiot, 2014). To integrate these values into decision-making, economists use techniques such as shadow pricing, replacement cost, and contingent valuation to calculate Total Economic Value (TEV) as the sum of Use Values (UV) and Non-Use Values (NUV). Where UV includes direct and indirect uses, and NUV represents intrinsic existence values (Canoy et al., 2026; Plottu & Plottu, 2007; University of Queensland, 2019).

However, this attempt at universal monetisation suffers from fundamental flaws. Attempts to express complex, non-linear ecological systems purely in monetary terms reduce these dynamic wholes to discrete, simplistic commodities. A forest is not merely the sum of isolatable units of carbon storage and categorised species that are mutually exchangeable; it is a living, indivisible network of interdependencies with the right to ecojustice. Financialisation reduces this rich ecological reality to a one-dimensional abstraction for speculative market players, where circular/green public procurement criteria can turn it into regenerative thinking.

Furthermore, this approach reinforces the very anthropocentric and extractivist mindsets that a regenerative economy seeks to replace. Instead of recognising nature's intrinsic value, monetisation subjects the biosphere to the accumulation drives of global capital. This traces directly to extractivism's inability to account for the long-term effects of current economic activities. Market-based instruments are inherently designed for short-term transactions and ignore the radical uncertainties and irreversible threshold effects within ecosystems. By commercialising the ecological crisis, the system refuses to transform its destructive foundations, instead creating new speculative markets at the expense of the biosphere.

6. Rethinking Societal Dogmas: Property, Value, and Reality

To successfully shift to a regenerative 'We-All' paradigm, we must thoroughly rethink several deeply entrenched societal dogmas. This intellectual deconstruction aligns closely with Sheldrake (2012) in thesis *The Science Delusion*, where he shows that contemporary science is constrained by dogmatic assumptions mistakenly treated as absolute truths. Similarly, our contemporary societal design is held hostage by three persistent socio-economic dogmas: absolute property rights, short-term value, and the supremacy of legal reality over natural reality.

6.1 The Dogma of Property

Within the neoliberal structure, the absolute, individual right to property is regarded as an inviolable core value, In light of the necessity to think long-term, however, this dogma is untenable (Burdon, 2014). Can one truly claim absolute ownership of the Earth, land, or vital ecosystems?

The empirical reality of this property maximisation is painfully exposed in the *World Inequality Report 2026*, published in late 2025 by the World Inequality Lab (Chancel et al., 2025). The data in this report show that the gap between the owners of capital and the rest of the world has reached unprecedented, destructive proportions. The findings are summarised in the table below.

Table 2: Inequalities arising from the dogma of Property

Inequality category	Key statistic from the World Inequality Report 2026	Governance and systemic consequence
Global wealth concentration	The wealthiest 0.001% (fewer than 60,000 individuals) owns three times more wealth than the entire bottom half of humanity combined.	Extreme concentration of decision-making power over means of production and resources, which blocks democratic and regenerative steering.
Wealth distribution by decile	The richest 10% owns 75% of global wealth, whilst the poorest 50% holds just 2%.	The bottom half of humanity is entirely excluded from basic economic stability and possesses no adaptive capacity to absorb ecological shocks.
Climate inequality (capital)	The poorest half of the world's population is responsible for just 3% of carbon emissions linked to private capital ownership, whilst the wealthiest 10% claims a staggering 77%.	The ecological footprint and climate change are primarily driven by the investment choices of a wealthy elite, rather than merely by individual consumption.

As the report shows this extreme inequality proves that the concept of absolute property can no longer be sustained if we wish to guarantee social cohesion and ecological continuity (Chancel et al., 2025). Instead of absolute appropriation, we must shift towards a concept where we only receive parts of the world on *loan* or as *usufruct* (Bosselmann, 2015). Humanity does not own the Earth; we merely steward it temporarily for successive generations.

6.2 The Dogma of Value

In the current neoliberal economy, value is synonymous with short-term value maximisation for the individual subject or corporate entity (Mazzucato, 2018; Palley, 2023). This reductionism ignores the fact that genuine value is rooted in the vitality of the commons, - the collective resources, social networks, and ecological foundations of our existence (Bosselmann, 2015). Regenerative rethinking redefines value in terms of sustainability, equality, and equity across generations. Value creation is then no longer measured by the amount of capital extracted from a system, but by the extent to which the system is strengthened and nourished as a whole.

6.3 The Dogma of Reality

In contemporary society, we reason primarily within a 'legal reality'. The rule of law, with its human-constructed laws, property titles, and contractual obligations, is treated as near-sacred and absolute (Alexander, 2011). This

creates the absurd situation where economic and legal growth systems are legally protected while the biophysical systems that make them possible are systematically destroyed. We must invert this dogma: ground ourselves in a *nature-given reality*, with its inexorable biophysical laws and ecological limits(Montini, 2017). Our legal and economic institutions are human constructs and must adapt to the laws of nature, rather than demanding that nature adapt to the laws of the market.

7. Stewardship as the Necessary Third Concept: Integrating Thinking in Me-We-All

Rethinking these societal dogmas exposes the limits of an organisational world that relies solely on the familiar concepts of Management and Leadership (Lunenburg, 2013). To truly prepare organisations for the future and transition to a regenerative paradigm, organisations need to introduce a third concept: Stewardship (Takács & Abcouwer, 2024).

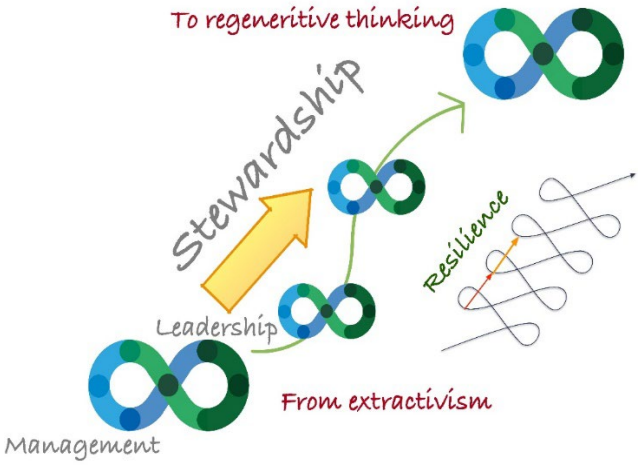


Figure 3: Stewardship for a fair and sustainable future (own work)

Stewardship transcends the traditional boundaries of business operations. Whilst management focuses on internal processes and efficiency (the 'how' question), and leadership on direction and innovation (the 'where to' question), stewardship is fundamentally oriented towards ethical and moral responsibility for the larger whole and the long term (the 'why' and 'for whom' questions) (Hernandez, 2012). Stewardship embodies the human and organisational duty to carefully manage, protect, and hand over entrusted natural, social, and economic resources in a restored state to future generations.

By explicitly integrating stewardship into the governance triangle alongside management and leadership, a balanced governance model emerges that can leave the destructive dogmas of the past behind. Stewardship compels organisations to subordinate self-interest to the general interest and to act from a deep awareness of ecological and social interconnectedness.

Table 3: Comparison: Management-Leadership-Stewardship

Governance concept	Primary focus area	Temporal orientation	Primary Value System
Management	Rationalisation, optimisation, stability, process control.	Short term (Today).	Efficiency and transactional value.
Leadership	Innovation, vision, creativity, motivation, change.	Medium term (Tomorrow).	Transformational and strategic value.
Stewardship	Careful management, resource preservation, ethics, system integrity.	Long term (After tomorrow and future generations).	Regenerative value and intergenerational justice.

8. Conclusion

By integrating Stewardship into the Management and Leadership paradigm for a Regenerative Future, organisations can shift from extractivist entities to active vehicles of societal resilience. Applying this integrated model through the 'Me-We-All' approach can build a shared understanding of ecojustice and responsibility to future generations.

Education, sensitisation, knowledge, and capacity building in organisations are ways to start shifting the paradigm for a Regenerative Future. Decision makers in public authorities and private entities should lead by example and serve as role models for caring about the Planet. Applying CGGP is one way to start the change: when public procurers handle public money with care for All and a stewardship attitude, and when providers shift from profit maximisation to the welfare of All.

The actions of the individual employee ('Me') and the strategy of the organisation ('We') are thereby directly linked to the survival and flourishing of the wider world ('All'). In this way, organisational actions no longer deplete the system but strengthen and regenerate the biophysical and social structure for generations to come.

Ethics Declaration: For this paper, no ethics clearance is required.

AI Declaration: AI tools are used to improve the language.

References

Abcouwer, A. W., Takács, E., & Banga, O. P. (2022). *Adaptive Information Management*. A.A.A. & O.

Abcouwer, A. W., Takács, E., Schilstra, T., & Banga, O. P. (2022). *The Me, We, All Approach - Circular Resilience*. A.A.A.& O.

Abcouwer, T., Takács, E., Banga, O., Brands, M., & Wodrada, E. (2024). *Improved information exchange as advanced governance tool* European Conference on Management Leadership and Governance 2024, Lisbon.

Alexander, S. (2011). Property beyond growth: Toward a politics of voluntary simplicity. In *Property Rights and Sustainability* (pp. 117–148). Brill Nijhoff.

Atapattu, S. A., Gonzalez, C. G., & Seck, S. L. (2021). Intersections of environmental justice and sustainable development: Framing the issues.

Bal, P. M., & Dóci, E. (2018). Neoliberal ideology in work and organizational psychology. *European Journal of Work and Organizational Psychology*, *27*(5), 536–548.

Boell, H. (2015). *The pricing of everything*. https://www.boell.de/en/2015/11/09/economic-valuation-nature

Bosselmann, K. (2015). Earth governance: trusteeship of the global commons. In *Earth Governance*. Edward Elgar Publishing.

Brand, U. (2022). The Global Political Economy of the imperial mode of living. *Global Political Economy*, *1*(1), 26–37.

Brand, U., & Wissen, M. (2018). What kind of great transformation? The imperial mode of living as a major obstacle to sustainability politics. *GAIA-Ecological Perspectives for Science and Society*, *27*(3), 287–292.

Burdon, P. D. (2014). *Earth jurisprudence: Private property and the environment*. Routledge.

Canoy, M., Kamphorst, J. J., & Tichem, J. (2026). The honest truth about true pricing. *Journal of Environmental Economics and Management*, 103305.

Capitals Coalition. (2024). *SUSTAIN – Strengthening understanding and strategies of business to assess and integrate nature* (Report DNB 2024, Issue. https://capitalscoalition.org/wp-content/uploads/2024/09/SUSTAIN_Report_DNB_2024.pdf

CE Delft. (2023). *ACT report: True pricing in the catering sector.* (Delft, Issue. https://ce.nl/wp-content/uploads/2023/05/ACT-report-True-Pricing.pdf

Central Bureau of Statistics. (2022). *Natural capital accounting in the Netherlands*. Central Bureau of Statistics The Netherlands,

Wageningen University,. https://www.cbs.nl › nca-nl-technical-report-2022

Central Bureau of Statistics The Netherlands. (2025). *De gebruikswaarde van natuur in Nederland*. https://www.cbs.nl/nl-nl/longread/rapportages/2025/de-gebruikswaarde-van-natuur-in-nederland

Chancel, L., Gómez-Carrera, R., Moshrif, R., & Piketty, T. (2025). *World Inequality Report 2026*. wir2026.wid.world

Crossreis. (2024). *Regeneration as an innovative business model: Transitioning from efficiency to restoration*. https://crossreis.com/journal/2024/JRE-Vol1-Issue2-2024-3.pdf

Dorst, K. (2015). *Frame innovation: Create new thinking by design*. MIT press.

Folke, C. (2006). Resilience: The emergence of a perspective for social-ecological systems analyses. *Global Environmental Change*, *16*(3), 253–267.

Geus de, M. (1989). *Organisatietheorie in de politieke filosofie*. Eburon.

Hawken, P. (2021). *Regeneration: Ending the climate crisis in one generation*. Penguin.

HEC Paris. (2025). Regenerative business isn't a buzzword — It's a blueprint.

Heene, A. (2002). *Praktijkboek strategie*. Scriptum.

Hernandez, M. (2012). Toward an understanding of the psychology of stewardship. *Academy of Management Review*, *37*(2), 172–193.

Holling, C. S. (1996). Engineering Resilience versus Ecological Resilience. In P. C. Schulze (Ed.), *Engineering with Ecological constraints* (pp. 31–44). National Academic Press.

Keidel, R. W. (1995). *Seeing organizational patterns : a new theory and language of organizational design*. Berrett-Koehler.

Lunenburg, F. (2013). Leadership versus management: A key distinction - at least in theory. *Main Issues Of Pedagogy And Psychology*, *3*(3), 15–18.

Martusewicz, R. A., Edmundson, J., & Lupinacci, J. (2014). *Ecojustice education: Toward diverse, democratic, and sustainable communities*. Routledge.

Maschette, L. C. (2026). Was Margaret Thatcher a conservative? Thatcherism and society. *Journal of Political Ideologies*, *31*(1), 160–182.
Mazzucato, M. (2018). *The value of everything: Making and taking in the global economy*. Hachette UK.
Meijering, M., Abcouwer, A. W., & Takács, E. (2020). *Overcoming the Traps in the Adaptive Cycle of Resilience Model* Eurasia Business and Economics Society, Madris, Spain.
Mentcon. (n.d.). *Regenerative business models: Beyond sustainability*. https://mentcon.com
Mikulewicz, M., Caretta, M. A., Sultana, F., & JW Crawford, N. (2023). Intersectionality & climate justice: A call for synergy in climate change scholarship. *Environmental Politics*, *32*(7), 1275–1286.
Monbiot, G. (2014). *The pricing of everything*. https://www.monbiot.com/2014/07/24/the-pricing-of-everything/
Montini, M. (2017). The double failure of environmental regulation and deregulation and the need for ecological law. *The Italian Yearbook of International Law Online*, *26*(1), 265–285.
Morrison, S. A. (2018). Reframing Westernized culture: insights from a Critical Friends Group on EcoJustice education. *Environmental education research*, *24*(1), 111–128.
Ortega Carrasco, P., Iannone, F., Ferrón Vílchez, V., & Testa, F. (2024). Green public procurement as an effective way for sustainable development. *Journal of Cleaner Production*, *441*, 142695.
Palley, T. (2023). The false promise and bitter fruit of Neoliberalism: political economic disembedding, cultural transformation, and the rise of proto-fascist politics. *El trimestre económico*, *90*(360), 1103–1138.
Patrucco, A. S., Kauppi, K., Di Mauro, C., & Schotanus, F. (2024). Enhancing strategic public procurement: a public service logic perspective. *Public Management Review*, 1–21.
Plottu, E., & Plottu, B. (2007). The concept of Total Economic Value of environment: A reconsideration within a hierarchical rationality. *Ecological economics*, *61*(1), 52–61.
Regenerate Tampa Bay. (2025). *Regenerative economics*. https://www.regeneratetampabay.org/regenerative-economics
Runyan, A. S. (2018). What is intersectionality and why is it important? *Academe*, *104*(6), 10–14.
Sheldrake, R. (2012). *The Science Delusion: Freeing the Spirit of Enquiry (NEW EDITION)*. Hachette UK.
Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M., Biggs, R., Carpenter, S. R., De Vries, W., & De Wit, C. A. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science*, *347*(6223), 1259855.
Takács, E., & Abcouwer, A. W. (2021, December 11 – 12 2021). Resilience, people and Information, a Triangle to build Sustainability. 2021 SIGED International Conference on Information Systems Education and Research, Austin Texas/online.
Takács, E., & Abcouwer, A. W. (2024). *Stewardship for managing societal challenges* 25th European Conference on Knowledge Management, Veszprém, Hungary.
Takács, E., Keményffy, O., & Abcouwer, T. (2024). *How Information in Education of Sustainability and Circularity can be a Driving Force in Society* European Conference on Information Systems Education Research, Paphos.
University of Queensland. (2019). Non-market valuation methods in cost-benefit analysis. In *Social Cost Benefit Analysis and Economic Evaluation*.
Washington, H., Chapron, G., Kopnina, H., Curry, P., Gray, J., & Piccolo, J. J. (2018). Foregrounding ecojustice in conservation. *Biological Conservation*, *228*, 367–374.
Yunibandhu, R., & Hallinger, P. (2025). From sustainability to regeneration: mapping the conceptual foundations and future directions of regenerative development. *Sustainable Development*, *33*(6), 8569–8585.

This paper has been developed within the CE-PRINCE project, supported by the Interreg CENTRAL EUROPE Programme with co-financing from the European Union. Its content is the sole responsibility of the authors and the project partnership and does not necessarily reflect the views or positions of the Interreg CENTRAL EUROPE Programme, its programme bodies or the European Union. Neither the programme authorities nor the European Union can be held responsible for any use that may be made of the information contained herein.

Sustainable Leadership and Green Investment Decisions: The Role of ESG Integration in Reducing Financial Risk

Mohammad Talha[1], Syed Mohammad Faisal [2] and Ahmad Khalid Khan[2]
[1]Department of Accounting and Finance, Prince Mohammad Bin Fahd University, Al-Khobar, Saudi Arabia
[2]Department of Management, Applied College, Jazan University, Saudi Arabia

mtalha@pmu.edu.sa
dfaisal@jazanu.edu.sa
akkhan@jazanu.edu.sa

Abstract: This study aims to address this gap by exploring the relationship between sustainable leadership and decisions on green investment, as well as how incorporating ESG can serve as a strategic approach to reducing financial risks. It takes an empirical approach, gathering data from finance and corporate management professionals and decision-makers. The study was conducted systematically. It starts with an introduction, followed by a literature review and theoretical background. The hypotheses are developed and the conceptual framework presented in the next section. After that, methodology is presented, including data collection and analysis by Smart PL. The results and discussion interpret the results and findings, while conclusions, policy and financial management implications, and future research directions are presented. This study brings together leadership and perspective with ESG-informed investment approaches and delivers a nuanced perspective on how sustainability and financial stability can be aligned at organizations. In this study, the relationship between Sustainable Leadership (SL), ESG Integration (ESGI), Green Investment Decisions (GID), Financial Risk Reduction (FRR), and Organizational Performance (OP) is explored. The study is based on empirical survey data collected from 667 respondents (out of 700) from different professional spheres in India. The analysis of the proposed model is carried out as direct and indirect relationships between the constructs are evaluated using Partial Least Squares Structural Equation Modeling (PLS-SEM) in Smart PLS.

Keywords: Sustainable leadership, ESG integration, Green investment, Financial risk, PLS-SEM

1. Introduction

The world of business is rapidly changing, as climate change concerns continue to grow, environmental degradation and resource scarcity have become common issues, stakeholders are increasingly active in business, and regulators have ever stricter expectations. The concept of financial return is no longer the sole standard used to measure an organisation; now it is also increasingly measured based on how well it creates sustainable value and how well it handles environmental, social and governance (ESG) responsibilities (Ailman et al., 2017). This paradigm shift has changed the business landscape, forcing companies to rethink leadership, investments, risk management, and performance. Sustainability has evolved from a peripheral concern to a core of corporate strategy. Leadership critically shapes sustainability outcomes. Sustainable leadership integrates economic, environmental, social, ethical, and long-term stakeholder value into strategic decision-making (Ali et al., 2024). Unlike traditional leadership emphasizing short-term financial performance, sustainable leadership prioritizes resilience, responsible resource management, and long-term value creation across generations.

These leaders develop an organizational culture to inspire sustainable thinking, innovation and investment that can deliver economic and social benefits (Omitogun & Al-Adeem, 2019).

. Environmental, social, and governance (ESG) information is being demanded more than ever by regulators, investors, customers, and other stakeholders for organizations to be transparent about (Ponnusamy et al., 2021). ESG integration has evolved from a voluntary reporting practice into a strategic management tool that shapes investment decisions, organizational reputation, access to capital, and long-term financial sustainability.

This shift is increasingly reflected in the rise of green investment decisions. In the context of green investments, environmental aspects refer to the financial and organizational investment in environmentally responsible projects, environmentally friendly energy technologies, energy saving systems, measures for pollution reduction, sustainable infrastructure and many other environmentally sensible initiatives (Rijanto, 2024).

Financial risk management is also an upcoming topic in the research on sustainability. The financial risks for organizations of all industries have increased due to environmental disruptions, climate-related events, regulatory penalties, reputational crises and stakeholder pressures (Javadnejad et al., 2024). The variety of these sustainability-related exposures are not fully reflected in traditional risk management practices. As a result, there has been an increasing debate about the potential of sustainability investments and ESG governance

mechanisms to be effective in lowering financial uncertainty (Schmidt-Hebbel & Serven, 2000; Sheela et al., 2023). However, evidence-informed explanations of the potential for measurable risk reduction from leadership-influenced sustainability programs is still limited and fragmented.

While the concepts of sustainable leadership, ESG practices, green investments and organizational performance have received attention in separate studies, few studies have explored the interconnections of these concepts in a coherent manner (Sisay et al., 2022). Previous studies are often siloed and focused on the variables examined separately, neglecting the sequential nature of how sustainability leadership can be related to organizational results.

2. Literature Review

Sustainability has moved to the center of business strategy, reshaping approaches to leadership, governance, resource allocation, and performance management (Zhao et al., 2024). Concerns over climate change, environmental degradation, social inequality, and corporate accountability pressure organizations to adopt practices that create long-term value and meet stakeholder expectations (Mackey et al., 2019). Consequently, sustainable leadership, ESG integration, and environmentally responsible investment strategies have become strategic priorities. This shift has intensified academic debate on how sustainability-oriented governance enhances organizational effectiveness.

2.1 Sustainable Leadership and ESG Integration

Sustainable leaders balance economic, social, and ecological priorities in decision-making. Research shows leadership central to embedding sustainability (Ostojic et al., 2024). Leadership commitment influences priorities, resource allocation, governance structures, and stakeholder engagement, likely integrating ESG considerations into strategic activities. ESG integration institutionalizes sustainability by incorporating environmental, social, and governance factors into risk assessment, performance measurement, planning, and investment decisions (Ge & Campopiano, 2022). Prior studies associate leadership commitment with ESG adoption. Sustainable leadership therefore represents an antecedent to effective ESG implementation.

2.2 Sustainable Leadership and Green Investment Decisions

The study of the link between leadership and decision on investments has been long of interest in strategic management and corporate finance studies. Leadership affects organizational investment behaviour through its impact on strategic priorities, risk perceptions, agendas of innovation, and patterns of investments (Han et al., 2023).

Green investment decisions are investments made by organizations towards projects and initiatives that produce environmental benefits and benefit economic goals (Erin et al., 2023). The investments typically involve renewable energy technologies, sustainable infrastructure, energy-efficient production systems, waste reduction projects, and environmentally responsible innovation projects.

The literature and research is growing to clearly show that leaders who are concerned about sustainability are more likely to invest in investments that cause long-term environmental and social benefits (Khan et al., 2016). Strategic resistance instead of profitability focus helps provide a company with a framework for investing in initiatives that will help improve future competitiveness while minimizing environmental impacts (Post & Le Billon, 2024). Leadership commitment is therefore considered as a significant factor affecting green investment behavior.

2.3 Integrating ESG Principles into Investment Decisions

ESG has become much more significant than ever before in the way organizations are assessing investment opportunities (Mirza et al., 2025). Traditional assessment methods of investments were mainly based on financial parameters like profitability, liquidity and return on investment.

It offers a way for companies to have clear processes on how to evaluate the environmental, social, and governance (ESG) effects of investment options (Oztemel & Gursev, 2020). In this process, companies can uncover opportunities and risks related to sustainability that could impact company performance over time.

Research indicates that companies with better ESG integration skills tend to be more likely to invest in the environment.Research also shows that companies with more robust ESG capabilities are more likely to make environmental investments (Paraskeva & Tsoulfas, 2025). ESG frameworks push decision-makers to think about externalities related to sustainability that would not have been taken into account in traditional financial analysis

(Klimczak et al., 2022). However, researchers also have suggested that by itself, incorporating ESG does not necessarily lead to sustainable investment practices.

2.4 The Program Will Cover Financial Risk Reduction and Green Investment Decisions

The link between sustainability-oriented investments and financial risk management has become more prominent in the academic and practitioner world (Ruhnke, 2023). Modern businesses must deal with many sustainability challenges such as environmental liabilities, climate change-related disruptions, regulatory fines, reputation and stakeholder activism. These risks have financial impacts and can impact organizational stability and performance.

Green investments are becoming one of the most important tools to deal with such exposures. Environmental innovation, cleaner production technologies, sustainable supply chains, and investments in renewable energy can help lower vulnerabilities related to operation and enhance compliance with new regulations (Sharma et al., 2022).

2.5 The Quality of Financial Risk Reduction and Organizational Performance

Financial risk management has long been considered one of the key factors for the success of an organization. Decreased uncertainty improves management decision making, better capital allocation efficiency, better long term planning and better stakeholder confidence (Sewpersadh, 2025). In sustainability literature, financial risk reduction is nowadays considered as a key process between sustainability and organizational performance.

Those that successfully manage sustainability risks are likely to benefit from access to financial resources, increased investor confidence, improved customer loyalty, and increased resilience to operations. Such benefits directly and indirectly lead to better organizational outcomes (Lam & Dongol, 2022). In addition, clear governance procedures and prudent risk management procedures enhance the organization's legitimacy, making relationships with investors, regulators, and other stakeholder groups more positive.

Together, the literature implies a sequential sustainability pathway, where the sustainable leadership facilitates the integration of ESG, the integration of ESG in turn encourages green investment decision, green investment decision, in turn, contributes to financial risk reduction, and reduced financial risk in turn helps to improve the organizational performance (Kaiser, 2020). Although there is an increasing well of interest in these individual relationships, empirical research on these relationships within an integrated framework has been limited (Oláh et al., 2020). The gap created is a theoretical basis for the present study and supports the development of the proposed conceptual model.

3. Research gap

This study addresses gap by testing framework linking Sustainable Leadership, ESG Integration, Green Investment Decisions, Financial Risk Reduction, and Organizational Performance. Using 667 Indian professionals and decision-makers and PLS-SEM, it examines how sustainability-oriented leadership shapes ESG integration, investment choices, risk reduction, and outcomes (Wong et al., 2024). Its contribution is theoretical and practical. For executives, investors, policymakers, and boards, findings clarify how leadership-driven sustainability strategies strengthen resilience, improve performance, and support environmental responsibility, financial stability, and long-term competitive advantage.

4. Research Methodology

The research design in this study is quantitative, explanatory and cross-sectional research.The research design of this study is quantitative, explanatory and cross-sectional research. The quantitative approach is suitable in this research because the research aims to test the hypotheses that have been previously formulated and measure the relationships of the relationships between causal variables between two constructs with latent variables in a sustainability paradigm in the organizational context. A sample of 700 professionals and decision makers from different sectors in India was targeted and 667 were selected as respondents. The respondents have been chosen due to their practical experience in the field of Corporate Finance, Sustainability Management, ESG practices, Investment Evaluation, and FIRs decision-making process, making them valuable sources of information for evaluating the proposed model. Structured questionnaire was the primary data collection tool used. Each construct was assessed using multiple reflective indicators that reflected the theoretical aspects of sustainable leadership, integration of ESG, green investment behavior, financial risks mitigation and organizational performance. The responses were taken on a Likert scale of 1 to 5 indicating the participants' level of agreement with each measurement item. The collected data were initially checked for completeness,

consistency, and appropriateness of multivariate statistical testing.Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS was used for the study.

Hypotheses

H1: Sustainable Leadership has a positive impact on ESG Integration.

H2:The impact of Sustainable Leadership on Green Investment Decisions is positive.

H3: Green Investment Decisions are positively affected by ESG Integration.

H5: The financial risk reduction reflects positively to Green Investment Decision.

H5: Financial Risk Reduction has a positive impact on Organizational Performance.

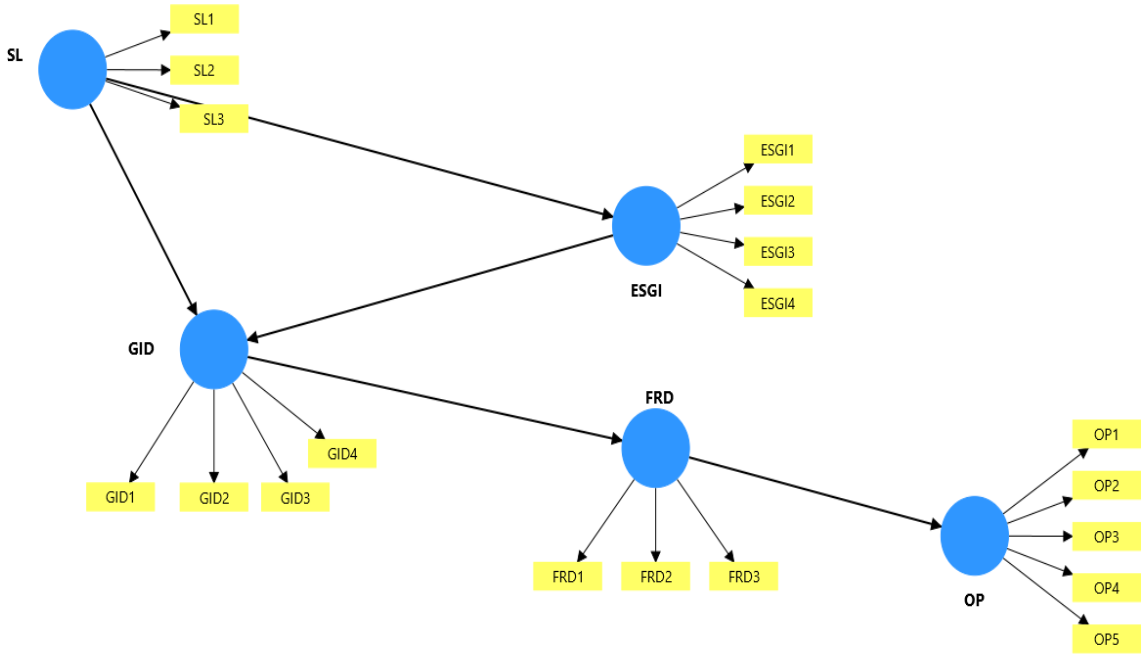


Figure 1: Sustainable Leadership–ESG Structural Framework

The proposed conceptual framework for the hypothesized structure among the Sustainable Leadership (SL), ESG Integration (ESGI), Green Innovation Development (GID), Financial Reporting Disclosure (FRD), and Organizational Performance (OP) is shown in figure 1. SL is modeled as a main independent construct as it is of strategic importance in the context of embedding sustainability oriented values into organizational systems. SL is likely to have a direct impact on ESGI, and to have an influence on GID, suggesting that sustainability-focused leadership can foster a more general shift to innovation and environmental practices. ESGI also plays a part in GID, proposing that a structured approach to ESG implementation can enhance the innovation capacity of an organization. GID, in turn, impacts FRD, suggesting that the quality and breadth of financial and sustainability-related disclosures might be improved by green innovation practices. Lastly, FRD is hypothesized to affect the dependent construct OP. The framework suggests ESGI, GID, and FRD are intermediate mechanisms that could indirectly contribute to sustainable leadership having a positive effect on organizational performance.

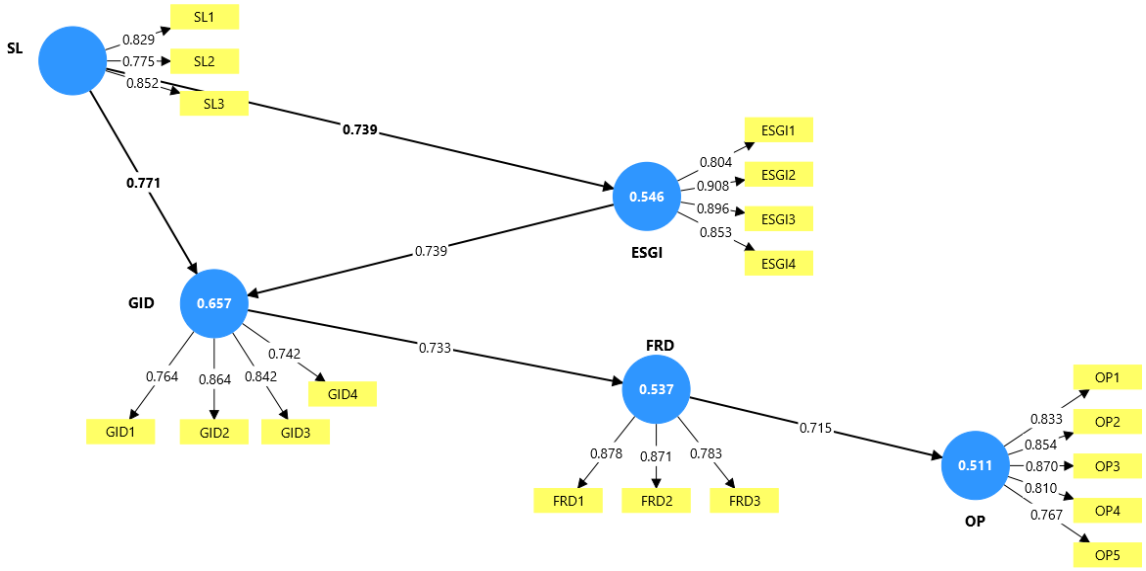


Figure 2: Structural Model Results

The results of the PLS-SEM structural model are presented in Figure 2, which depicts the relationships among the variables in this study.

The structural paths indicate positive relationships among the constructs. The coefficient of the SL on GID is 0.771, which indicates a strong positive relation with GID, and the coefficient of the SL on ESGI is 0.739, indicating a positive relation for ESGI as well. This means that leadership in sustainability has a positive influence on both the green innovation capability and the ESG implementation. ESGI is also positively correlated with GID (0.739), suggesting that more advanced integration of ESGs could contribute to innovation-based sustainability practices. GID in turn positively influences FRD with a coefficient of 0.733 and FRD positively influences OP with a coefficient of 0.715.

The R^2 values of the endogenous constructs show that ESGI, GID, FRD and OP explain 0.546, 0.657, 0.537 and 0.511 of the variance within the constructs respectively. The loadings of indicators onto the latent variables are relatively good, and most of them are higher than the standard of 0.70. From the overall picture, the model proposes a coherent structural mechanism by which sustainable leadership positively influences organizational performance indirectly by integrating ESG into the organization, developing green innovation, and disclosing financial report on sustainability.

Table 1: Reliability and Convergent Validity Assessment

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
ESGI	0.889	0.893	0.923	0.751
FRD	0.798	0.803	0.882	0.714
GID	0.817	0.821	0.88	0.648
OP	0.884	0.887	0.916	0.685
SL	0.755	0.762	0.859	0.671

The reliability and convergent validity results are shown in Table 1 for the five latent constructs in the measurement model, namely ESG Integration (ESGI), Financial Reporting Disclosure (FRD), Green Innovation Development (GID), Organizational Performance (OP) and Sustainable Leadership (SL). Cronbach's alpha values are in the range of 0.755–0.889, which is higher than the recommended value of 0.70. This means that the indicators for each construct have satisfactory internal consistency as well as adequate overlap in the assessment of theoretical dimensions of the construct.

The composite reliability results also suggest that the measurement model is robust. The rho_a values range from 0.762 to 0.893, while the rho_c values vary between 0.859 and 0.923.

The Average Variance Extracted (AVE) is used to determine the convergent validity. The range of AVE values is 0.648-0.751, which is all above the minimum recommended value of 0.50. This means that each construct accounts for over 51% of the variance in the items measuring that construct, thus indicating that the items have a reasonable degree of convergence. In terms of the indicators, they are not spread out in unrelated conceptual domains, but rather, they merge in a sensible way around the domain of interest in the domain of interest.

In sum, the results are good evidence of the statistical reliability and conceptual validity of the measurement model. The internal consistency is supported by the satisfactory Cronbach's alpha and composite reliability, and the convergent validity is supported by the AVE results. Thus, constructs of ESGI, FRD, GID, OP, and SL can be used for further assessment of the structural model, such as hypothesis testing, interpretation of path coefficients, and estimation of the explanatory power of the model.

Table 2: Structural Path Coefficients

	Path coefficients
ESGI -> GID	0.373
FRD -> OP	0.715
GID -> FRD	0.733
SL -> ESGI	0.739
SL -> GID	0.496

In the model, Sustainable Leadership (SL) is the primary antecedent as it directly affects ESGI and GID. The highest path is between SL and ESGI (sustainability-oriented leadership) with a coefficient of 0.739, indicating that sustainability-oriented leadership is a significant contributor to the reinforcement of environmental, social, and governance practices in organizational systems. SL also shows a positive relationship with GID, with coefficient of 0.496, which means that leadership that is committed to sustainability can help develop green innovation, but the relationship is relatively weak as shown in the table 2.

The coefficient of ESGI to GID is 0.373 with a moderate positive relationship. This means that the effect of ESG integration on developing green innovation can happen concurrently with other organizational skills, and leadership commitment, technological readiness and strategic resource allocation. The coefficient of GID with FRD is 0.733 and is a very strong predictor of FRD in the later stage of the model. In this association, organizations that are making more progress in green innovation tend to disclose more financial reporting information, and that disclosure information is of higher quality and more extensive, especially in terms of accountability and transparency in relation to innovation practices.

Finally, there is a strong positive relationship with FRD and OP with a coefficient of 0.715. This suggests that better reporting disclosure can have a positive impact on organisational performance by providing transparency, credibility and confidence to those affected by the organisation.

Table 3: R-square and Adjusted R-square Assessment of the Structural Model

	R-square	**R-square adjusted**
ESGI	0.546	0.546
FRD	0.537	0.536
GID	0.657	0.656
OP	0.511	0.51

The R-square and adjusted R-square values for the endogenous constructs in the PLS-SEM structural model are shown in Table 3, which includes ESG Integration (ESGI), Financial Reporting Disclosure (FRD), Green Innovation Development (GID), and Organizational Performance (OP). An R-square value represents the percentage of variance in the endogenous construct explained by the predictor construct (or constructs). The adjusted R-square value, on the other hand, is more conservative as it takes into account model complexity and the number of the predictors that are part of the structural specification.

The R2 and adjusted R2 values are the highest for GID with values of 0.657 and 0.656, respectively, among the reported constructs. It shows that the model has a relatively high predictive contribution in explaining the variance in Green Innovation Development, as 65.7% of the variance is explained by the antecedent variables.

ESGI is the next highest with an R^2 value of 0.546, which equates to 54.6% of variance explained by Sustainable Leadership. The results of this study also demonstrate acceptable explanatory power of FRD (R2 = 0.537 and adjusted R2 = 0.536) which means that the financial reporting disclosure practices can be meaningfully explained by Green Innovation Development. Likewise, the R^2 value for OP is 0.511 and the adjusted R^2 value is 0.510, indicating that 51.1% of the variance in OP is explained by Financial Reporting Disclosure.

The overall R-squared values suggest that the model has a moderate to strong explanatory power, a result that is suitable for behavioral, managerial, and organizational studies, where several contextual factors can affect the outcomes. The tiny difference between R^2 and adjusted R^2 values also indicate the stability and parsimony of the model and that the model is not overfit with the inclusion of unnecessary predictors. Hence, the structural model is adequately explanatory, and it offers a sound foundation for understanding the proposed relationships between the constructs.

5. Discussion

Sustainable leadership shapes investment practices and organizational performance by embedding ESG principles into strategic decision-making. In response to climate risks and regulatory pressures, leaders promote ESG integration and green investments to reduce financial uncertainty. Sustainable Leadership strongly influences ESG Integration ($\beta = 0.739$), demonstrating that ESG adoption is primarily driven by leadership orientation rather than compliance requirements. Integrating ESG into governance and risk management supports long-term value creation.

Sustainable Leadership also contributes to Green Investment Decisions ($\beta = 0.496$) by encouraging investments in renewable energy and clean technologies despite initial costs. ESG Integration further supports these decisions ($\beta = 0.373$) through improved risk identification, although technological readiness and available resources remain important constraints. Green Investment Decisions significantly reduce Financial Risk ($\beta = 0.733$) by limiting regulatory penalties and operational disruptions. In turn, Financial Risk Reduction enhances Organizational Performance ($\beta = 0.715$) through stronger strategic planning and increased stakeholder trust. The model shows robust explanatory power: Green Investment Decisions ($R^2 = 0.657$), ESG Integration ($R^2 = 0.546$), Financial Risk Reduction ($R^2 = 0.537$), and Organizational Performance ($R^2 = 0.511$). These values are especially significant in research situations involving organizations and behavior where many other factors may be impacting results.

Reliability and validity evaluation are added support for the robustness of the findings of the study. The Cronbach alpha values for all constructs are above the recommended value of 0.70, indicating good internal consistency. Similarly, reliability of the composite scale is good and convergent validity is good with AVE>0.50. Based on these results, it can be concluded that the instruments used for measuring the Sustainable Leadership, ESG Integration, Green Investment Decisions, Financial Risk Reduction, and Organizational Performance are able to measure the theoretical dimensions of the Sustainable Leadership. Thus, the structural relationships observed can be interpreted with great certainty.

In theory, the research contributes to the field of the leadership-driven sustainability process and its resulting effects on the organization. The proposed framework is not focusing on sustainability practices in isolation, but rather is capturing a process or sequential relationship between leadership, integration of sustainability in investment practices, green investment behavior, financial risk and performance. This holistic approach advances sustainability and management knowledge by demonstrating the interdependence of leadership, governance, investment decisions, and organizational performance. The findings offer practical implications for executives, investors, policymakers, and boards. Organizations should develop sustainability-oriented leadership capabilities to strengthen resilience and competitiveness. ESG integration should be embedded in strategic planning and investment assessment rather than viewed solely as a compliance requirement. Green investments should be recognized as strategic initiatives that deliver both financial and non-financial benefits. As climate and social challenges reshape markets, firms that effectively align ESG practices, leadership approaches, and sustainable investment strategies are more likely to achieve superior performance and long-term financial resilience.

6. Conclusion

This study contributes to sustainability and corporate governance literature by empirically examining the relationships among Sustainable Leadership, ESG Integration, Green Investment Decisions, Financial Risk Reduction, and Organizational Performance. Under conditions of environmental uncertainty, regulatory

pressure, and rising accountability demands, sustainability-oriented leadership emerges as a strategic organizational asset. Sustainable Leadership drives this framework by embedding long-term objectives, ethical governance, and stakeholder engagement, creating the foundation for effective ESG Integration. Rather than representing mere compliance, ESG Integration translates leadership values into operational practices and investment decisions. Together, Sustainable Leadership and ESG Integration influence Green Investment Decisions by promoting renewable energy, resource efficiency, innovation, and the incorporation of environmental and social considerations. Thus, investments are embedded in governance. Green Investment Decisions reduce risk by mitigating regulatory uncertainty, environmental liability, and market instability, improving Organizational Performance, attracting investment, and sustaining competitiveness. These conclusions are supported by assessments; reliability and explanatory power support the framework.

From a theoretical point of view, this study contributes to the existing knowledge by suggesting and testing a sequential sustainability pathway by which leadership impacts organizational outcomes. While the study acknowledges that leadership, ESG practices, investment behaviour and performance are separate constructs, it showcases how they are interrelated and are part of an integrated sustainability ecosystem. The integrated approach adds depth to the understanding of the value creation potential of sustainability-oriented governance mechanisms on multiple organisational dimensions.

The results highlight a need from a managerial and policy perspective to integrate the sustainability dimension in leadership development and strategic planning, as well as in governance and investment analysis. Government, regulators, investors, and corporate boards should create an environment that promotes the adoption of and the ease with which ESG can be integrated into organizational decision-making and processes, and that incentivize such integration. Companies that are able to integrate sustainable leadership with ESG focused investment strategies will be better positioned to perform in a global economy that is increasingly focused on sustainability, and will benefit from improved stakeholder trust, financial stability, resilience, and organizational performance.

This framework could be expanded in future studies, through the addition of further mediating factors, moderating factors, and through longitudinal studies and cross-country comparisons of sustainability governance practices. These studies would help to build the knowledge base regarding how sustainable leadership creates value for the organization and society in the long term.

Declaration: The author used SmartPLS for data results, Grammarly, and Paperpal (an AI-assisted language editing tool), to improve the manuscript's clarity and readability. No content, data, or analyses were generated using this tool. The responsibility for content and conclusions remains with the author.

Conflict of interest: The authors in this manuscript do not have any conflict of interest and all respective authors have equal contribution.

References

Ailman, C., Edkins, M., Mitchem, K., Eliopoulos, T., & Guillot, J. (2017). The next wave of ESG integration: Lessons from institutional investors. *Journal of Applied Corporate Finance*, *29*(2), 32-43.

Ali, A. A. A., Fayad, A. A., Alomair, A., & Al Naim, A. S. (2024). The role of digital supply chain on inventory management effectiveness within engineering companies in Jordan. *Sustainability*, *16*(18), 8031.

Erin, O., Okoh, J. I., & Okika, N. (2023). Risk governance and risk disclosure quality: an empirical evidence. *Journal of Financial Reporting and Accounting*.

Ge, B., & Campopiano, G. (2022). Knowledge management in family business succession: Current trends and future directions. *Journal of Knowledge Management*, *26*(2), 326-349.

Han, H., Shiwakoti, R. K., Jarvis, R., Mordi, C., & Botchie, D. (2023). Accounting and auditing with blockchain technology and artificial Intelligence: A literature review. *International Journal of Accounting Information Systems*, *48*, 100598.

Javadnejad, F., Abdelmagid, A. M., Pinto, C. A., Mcshane, M., & Diaz, R. (2024). An exploratory data analysis of malware/ransomware cyberattacks: insights from an extensive cyber loss dataset. *Enterprise Information Systems*, *18*(9), 2369952.

Kaiser, L. (2020). ESG integration: value, growth and momentum. *Journal of Asset Management*, *21*(1), 32-51.

Khan, M. J., Hussain, D., & Mehmood, W. (2016). Why do firms adopt enterprise risk management (ERM)? Empirical evidence from France. *Management Decision*, *54*(8), 1886-1907.

Klimczak, K. M., Sison, A. J. G., Prats, M., & Torres, M. B. (2022). How to deter financial misconduct if crime pays? *Journal of Business Ethics*, *179*(1), 205-222.

Lam, T. Y., & Dongol, B. (2022). A blockchain-enabled e-learning platform. *Interactive learning environments*, *30*(7), 1229-1251.

Mackey, T. K., Kuo, T.-T., Gummadi, B., Clauson, K. A., Church, G., Grishin, D., Obbad, K., Barkovich, R., & Palombini, M. (2019). 'Fit-for-purpose?'–challenges and opportunities for applications of blockchain technology in the future of healthcare. *BMC medicine*, *17*, 1-17.

Mirza, N., Tudor, C. D., Horobet, A., & Belascu, L. (2025). Optimizing global risk-conscious portfolios: the strategic role of Sharia-compliant and ESG investments. *Sustainability Accounting, Management and Policy Journal*.

Oláh, J., Aburumman, N., Popp, J., Khan, M. A., Haddad, H., & Kitukutha, N. (2020). Impact of Industry 4.0 on environmental sustainability. *Sustainability*, *12*(11), 4674.

Omitogun, A., & Al-Adeem, K. (2019). Auditors' perceptions of and competencies in big data and data analytics: An empirical investigation. *International Journal of Computer Auditing*, *1*(1), 92-113.

Ostojic, S., Backes, J. G., Kowalski, M., & Traverso, M. (2024). Beyond Compliance: A Deep Dive Into Improving Sustainability Reporting Quality with LCSA Indicators. *Standards*, *4*(4), 196-246.

Oztemel, E., & Gursev, S. (2020). Literature review of Industry 4.0 and related technologies. *Journal of intelligent manufacturing*, *31*(1), 127-182.

Paraskeva, S., & Tsoulfas, G. T. (2025). Mitigating risks in public procurement. *Journal of Public Procurement*.

Ponnusamy, V. K., Kasinathan, P., Madurai Elavarasan, R., Ramanathan, V., Anandan, R. K., Subramaniam, U., Ghosh, A., & Hossain, E. (2021). A comprehensive review on sustainable aspects of big data analytics for the smart grid. *Sustainability*, *13*(23), 13322.

Post, E., & Le Billon, P. (2024). The 'Green War': Geopolitical Metabolism and Green Extractivisms. *Geopolitics*, 1-41.

Rijanto, A. (2024). Blockchain technology roles to overcome accounting, accountability and assurance barriers in supply chain finance. *Asian Review of Accounting*.

Ruhnke, K. (2023). Empirical research frameworks in a changing world: The case of audit data analytics. *Journal of International Accounting, Auditing and Taxation*, *51*, 100545.

Schmidt-Hebbel, K., & Serven, L. (2000). Does income inequality raise aggregate saving? *Journal of Development Economics*, *61*(2), 417-446.

Sewpersadh, N. S. (2025). Adaptive structural audit processes as shaped by emerging technologies. *International Journal of Accounting Information Systems*, *56*, 100735.

Sharma, M., Joshi, S., Luthra, S., & Kumar, A. (2022). Managing disruptions and risks amidst COVID-19 outbreaks: role of blockchain technology in developing resilient food supply chains. *Operations Management Research*, *15*(1), 268-281.

Sheela, S., Alsmady, A. A., Tanaraj, K., & Izani, I. (2023). Navigating the Future: Blockchain's Impact on Accounting and Auditing Practices. *Sustainability*, *15*(24), 16887.

Sisay, E., Atilaw, W., & Adisu, T. (2022). Impact of economic sectors on inflation rate: evidence from Ethiopia. *Cogent Economics & Finance*, *10*(1), 2123889.

Wong, L.-W., Tan, G. W.-H., Ooi, K.-B., Lin, B., & Dwivedi, Y. K. (2024). Artificial intelligence-driven risk management for enhancing supply chain agility: A deep-learning-based dual-stage PLS-SEM-ANN analysis. *International Journal of Production Research*, *62*(15), 5535-5555.

Zhao, Y., Wu, Q., Song, R., & Qu, Z. (2024). RETRACTED ARTICLE: How can sectoral green economic growth alter energy transformation? *Economic Change and Restructuring*, *57*(2), 52.

Employees' Perceptions of Transformational Leadership and its Relationship with Employee Productivity in Organisations

Tshingombe Tshibangu and Stanley Fore
Cape Peninsula University of Technology, Cape Town, South Africa

Tshibangut@cput.ac.za
fores@cput.ac.za

Abstract: Transformational leadership has become an important leadership approach in contemporary organisations because of its capacity to stimulate, empower and develop employees. This study explored employees' perceptions of four transformational leadership behaviours, namely inspirational motivation, intellectual stimulation, idealised influence and individualised consideration, and their perceived relevance to employee performance and productivity. A quantitative approach was adopted and a structured questionnaire was administered to 101 respondents, comprising 21 managers and 80 employees, selected purposively from the study setting. Responses were measured using a five-point Likert scale and analysed using descriptive statistics. Cronbach's alpha was used to assess internal consistency, while the Kaiser-Meyer-Olkin measure and Bartlett's test were considered in assessing the suitability of the items for factor analysis. The four transformational leadership items recorded an overall mean of 4.08, with respondents generally agreeing that the behaviours were present and relevant to performance. Cronbach's alpha of 0.87 indicated good internal consistency and the KMO value of 0.78 indicated acceptable sampling adequacy. The ANOVA reported in the study showed no statistically significant difference among the mean scores of the four leadership items ($F(3,400)=0.68$, $p>0.05$); it should therefore be interpreted as a comparison of item ratings rather than evidence that transformational leadership caused changes in productivity. The findings provide descriptive evidence of positive employee perceptions of transformational leadership, but do not establish a causal effect on employee productivity. The study recommends leadership development that strengthens transformational leadership behaviours, while future research should use an independent productivity measure and relational or predictive statistical analysis to test the leadership-productivity relationship directly.

Keywords: Transformational leadership, Productivity, Employee motivation, Organisational performance, Leadership effectiveness

1. Introduction

This research study is significant as it explores how employees perceive transformational leadership behaviours and their relevance to motivation, performance and productivity in organisations. In particular, the study considers idealised influence, inspirational motivation, intellectual stimulation and individualised consideration. Given the cross-sectional questionnaire design and the measures reported in this paper, the analysis is primarily descriptive and does not seek to establish a causal effect of transformational leadership on employee productivity.

2. Background

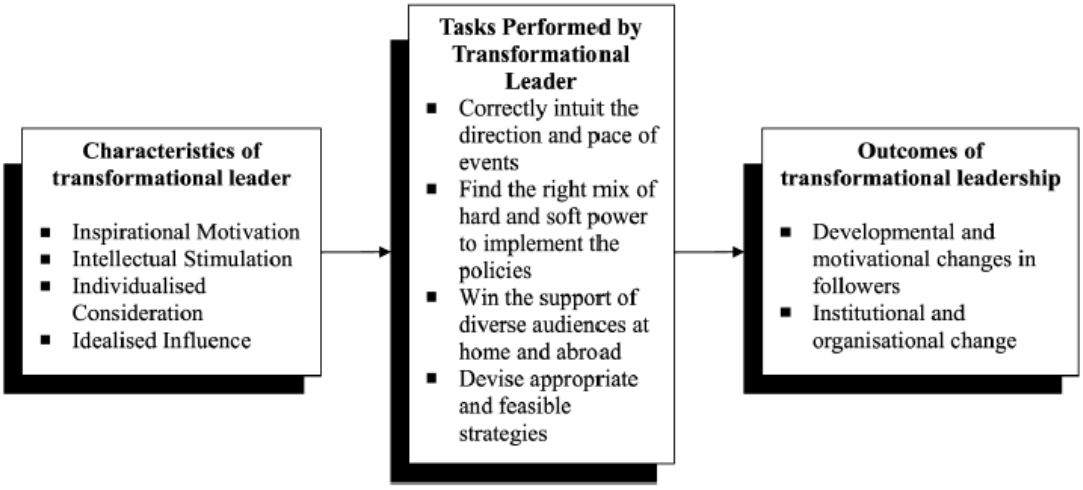
The notion of transformational leadership was introduced by James MacGregor Burns in his 1978 study of leadership. He illustrated this notion as a continuing process where leaders and employees elevate each other morally through motivation (Burns, 1978). Transformational leadership is defined as a management style where leaders lead with vision, encourage and persuade employees to achieve shared goals (Sengendo and Eduan, 2024). Engelsberger (2025) adds by saying that transformational leadership stimulates and empowers employees to contribute to the organisation's vision and success. The focal point for transformational leadership is to encourage employees through inspiration, intellectual stimulation, and individualised consideration (Kaur Bagga, Gera and Haque, 2023). In many organisations, transformational leaders encourage employees to develop their skills, to think creatively, and actively participate in decision-making processes. Leaders who adopt this leadership style aim to build strong relationships with employees and foster a positive organisational culture that enhances commitment and job satisfaction (Reinhardt, Leon and Summers, 2022). Transformational Leadership fits into higher levels, as it requires a high level of self-esteem and self-actualisation to successfully be an authentic transformational leader. Transformational leaders possess a peculiar character which is honesty. Honesty means leading the people in an ethical way (Layek and Koodamara, 2024). Leaders conduct themselves in the way to show example to other employees reflecting honesty and ethical behavior as key value in the organisation which employees will follow and consider the leaders as "an example". In the organisation, good transformational leaders have the duties to prioritise relationships, communicate their values, and at the same time pay suitable importance to processes (Lu, Swaab and Galinsky, 2022). Leaders have steps to become a transformational leader. These are illustrated in table 1

Table 1: Steps to become a transformational leader:

Leaders consistently communicate the vision.
Leaders lead by example by demonstrating integrity and trust.
Leaders empower employees through guidance and professional development.

Source: Mayberry (2024).

According to Hakim and Maunah (2023) good leaders shape future leaders by building stable organisation with credibility through the creation of clear vision that they will lay as a foundation for future leaders. Good leaders ensure that high performance is achieved by integrating the given vision in the practical activities of employees in the organisations. Furthermore, good leaders ensure that the rewarding practices are applied for the best performance of employees. The effects of transformational leadership are illustrated in the figure 1.



Source: The effects of transformational leadership (Source: Author's own construction)

Figure 1: The effects of transformational leadership

The above figure presents different characteristics of transformational leaders. With the inspirational motivation, leaders communicate clear visions and expectation by encouraging and motivating employees to exceed normal performance. This dimension is very crucial in order align the employees with the vision and the objectives set for the organisation (Fisher, 2021). With intellectual stimulation, leaders encourage employees to be more innovative and creative. By being innovative and creative, employees will become critical thinkers and will be able to generate new ideas which will allow them to solve problems in their organisation (Fishbach and Woolley, 2022). With the individualised consideration, leaders will act as mentors by providing personal attention, professional development and support to each employee by recognising their needs and strengths. This will promote growth and satisfaction in the performance of the employees (Njaramba, 2024). Lastly with the idealised influence, leaders present themselves as role model that employees can admire, respect and trust. This dimension builds a strong credibility and connection between the leaders and employees by inspiring loyalty and respect (Afshari, 2022). Transformational leaders do not focus only on the tasks but also on the people by motivating and encouraging them through innovation and trust which will lead to high performance and productivity (Urhahne and Wijnia, 2023). Employee productivity is a significant aspect for the development and sustainability of the organisation. High levels of productivity allow organisations to stay competitive in the market, advance effectiveness, and accomplish long-term objectives (Kassa and Worku, 2025). When Leaders take action to support and empower employees in the organisation, they will be happy and will demonstrate great commitment which will lead to increased productivity

3. Conceptual Link Between Transformational Leadership And Employee Performance

The four dimensions of transformational leadership provide a useful basis for explaining why employees may associate leadership behaviour with improved performance. Idealised influence concerns the extent to which

leaders model credible and ethical behaviour that employees are willing to emulate. Inspirational motivation concerns the communication of an attractive and meaningful vision that gives direction to employees' effort. Intellectual stimulation encourages employees to question routines, solve problems and generate new approaches to their work, while individualised consideration focuses on coaching, support and attention to employee development. Taken together, these behaviours provide motivational, relational and developmental mechanisms through which leadership can shape how employees approach their work (Afshari, 2022; Kaur Bagga, Gera and Haque, 2023; Njaramba, 2024). These mechanisms are relevant to productivity but should not be treated as productivity itself. Employee productivity normally concerns work outputs relative to the resources, time or effort used, whereas the items analysed in the present study capture respondents' perceptions of leadership behaviours. Motivation, commitment, engagement, innovation and adaptability may therefore be regarded as plausible pathways through which transformational leadership could ultimately contribute to employee or organisational performance. Recent evidence also indicates that leadership is positively related to adaptive performance and that motivational and relational processes are important in that relationship. The present study consequently treats favourable ratings of transformational leadership as evidence of perceived leadership practice, not as a direct measurement of productivity (Bonini et al., 2024). This distinction strengthens the interpretation of the study. The findings can identify which transformational behaviours are most strongly recognised by respondents and can show whether the four dimensions receive similarly favourable ratings. They cannot, on their own, show that a change in leadership produced a corresponding change in output. Establishing such a relationship would require a separately measured productivity variable and an analytical design capable of estimating the association between leadership and productivity. This conceptual boundary is maintained throughout the revised paper.

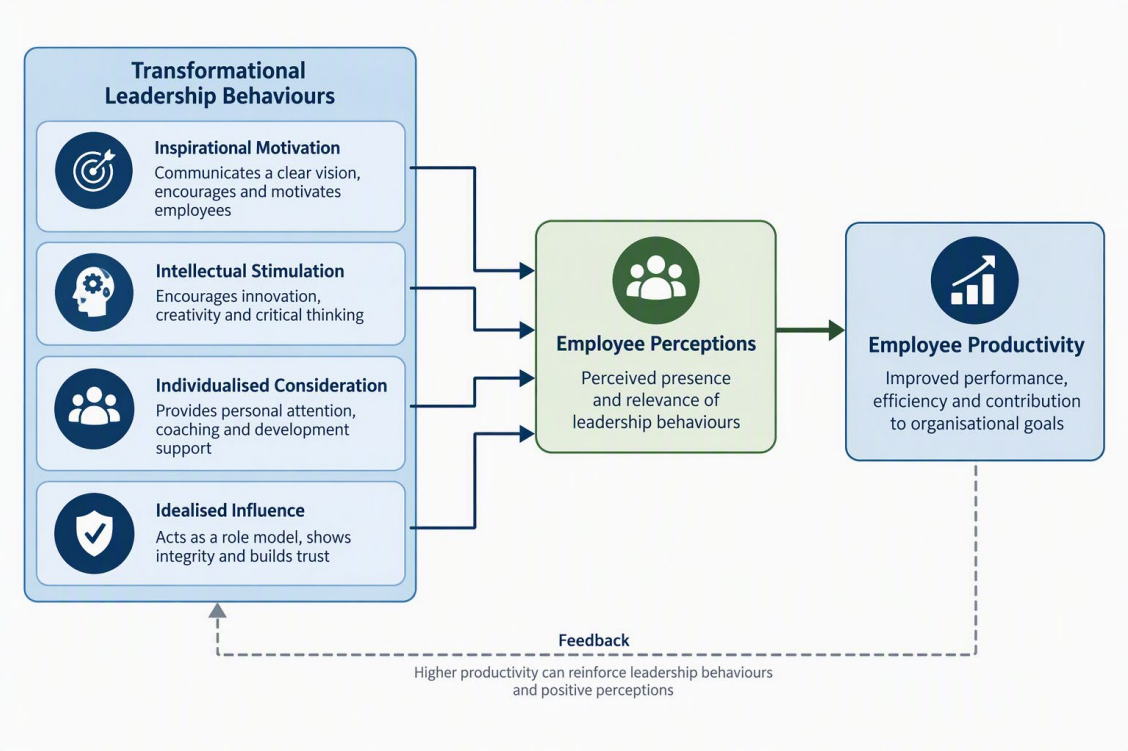


Figure 2: Conceptual framework linking transformational leadership behaviours, employee perceptions and employee productivity (Source: Author's construction)

Figure 2 summarises the conceptual logic of the study. The four transformational leadership behaviours are examined through employees' perceptions of their presence and relevance. The proposed link to employee productivity is conceptual rather than a tested causal pathway in the present analysis because productivity was not independently measured.

4. Research gap and Research Question

Although transformational leadership is widely associated with desirable employee and organisational outcomes, the literature reviewed above does not by itself establish how employees in the present study setting

perceive the four core transformational leadership behaviours and their relevance to work performance. Much of the cited literature addresses leadership, motivation, innovation or organisational performance in different contexts. This creates a contextual need to examine how the four behaviours are perceived by managers and employees in the organisation studied. Accordingly, the paper addresses the following research question: How do respondents perceive idealised influence, inspirational motivation, intellectual stimulation and individualised consideration, and their relevance to employee performance and productivity?

5. Research Approach

This study adopted a quantitative, cross-sectional research approach. A structured questionnaire was used as the primary data collection instrument to obtain standardised responses. Purposive sampling was adopted so that participants with relevant organisational experience could contribute to the study. A total of 101 respondents participated, comprising 21 managers and 80 employees. The questionnaire included items relating to four dimensions of transformational leadership: idealised influence, inspirational motivation, intellectual stimulation and individualised consideration. Responses to the items reported in this paper were recorded on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The analysis therefore reflects respondents' perceptions of these leadership behaviours and their perceived relevance to work performance; an independent objective measure of employee productivity was not reported in the dataset used for this paper. Descriptive statistics, including percentages, means, standard deviations and coefficients of variation, were used to summarise response patterns. Cronbach's alpha was used to assess the internal consistency of the questionnaire items. The Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test were used to assess whether the inter-item correlation structure was suitable for factor analysis; however, because factor-loading results are not reported in the available analysis, no factor-analytic claims are made in this paper. The reported ANOVA compares the mean ratings of the four leadership items. It does not test whether transformational leadership predicts or causes employee productivity and is interpreted only as a comparison among item ratings. The cross-sectional design, purposive sampling and self-reported measures limit causal inference and generalisability.

6. Measurement and Analytical Interpretation

The descriptive analysis was designed to establish the pattern and consistency of respondents' ratings across the four transformational leadership dimensions. Means above the midpoint of the five-point scale indicate generally favourable perceptions, while the standard deviations and coefficients of variation show the extent to which respondents differed in their ratings. Cronbach's alpha of 0.87 provides evidence that the reported leadership items have good internal consistency. The KMO statistic of 0.78 indicates that the correlation structure has an acceptable level of sampling adequacy for factor-oriented assessment. Because the full factor-loading matrix and the exact Bartlett statistic are not available in the supplied statistical output, the study does not make claims about a confirmed latent-factor structure. The ANOVA result is interpreted narrowly. A non-significant F statistic indicates that the mean scores assigned to the four reported leadership items are not statistically distinguishable at the conventional significance level. It does not test whether transformational leadership predicts employee productivity. This is important because an analysis of differences among leadership-item means addresses a different statistical question from a regression or correlation analysis involving a separate productivity outcome. The results are therefore presented as a profile of respondents' perceptions rather than as a causal test of the effect of leadership on productivity.

7. Results

7.1 The Idealised Influence

The results show clearly that 44% strongly agreed that the leader acts as a role model and 32% agreed that a the leader acts as a role model which both represent the majority of the respondents agreeing to the idea. 12% of the respondents decided to remained neutral. 10% of respondents disagreed and 3% of respondents strongly disagreed of the idea that leader acts as role model by showing high ethical standard and better performance through motivation.

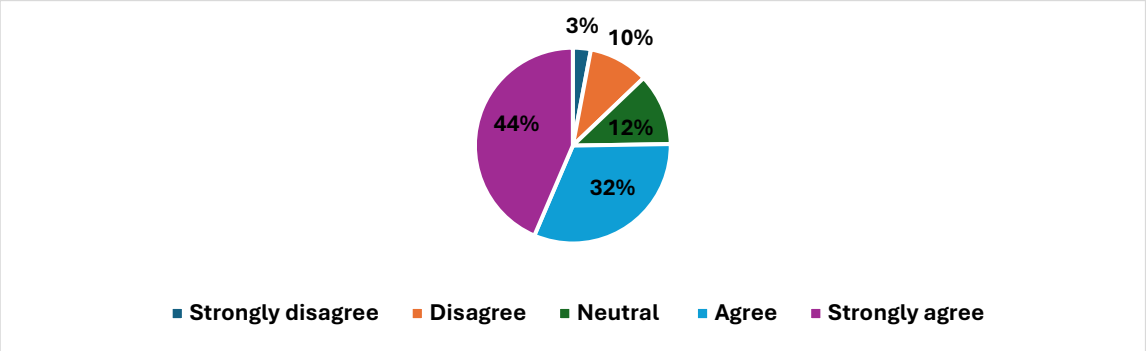


Figure 3: Leader acts as a role model (Source: Author's construction)

From the graph, the results show the mean of 4.03 with moderate spread around, a standard deviation of 1.11 and a coefficient of variance 27.5% showing that the variance is low and the responses are reasonably consistent.

7.2 The Inspirational Motivation

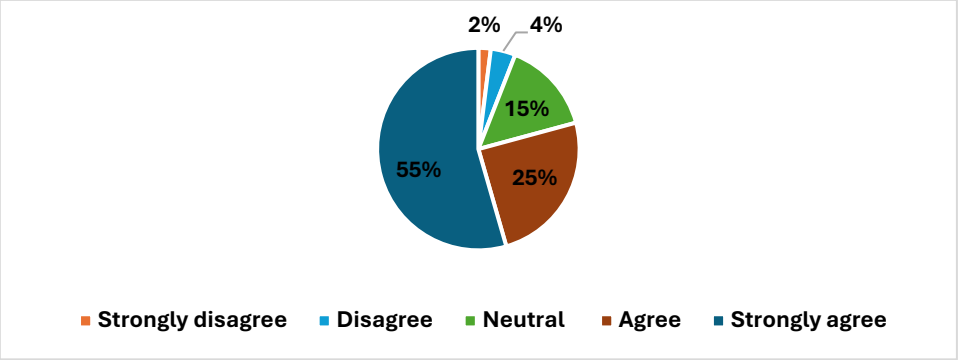


Figure 4: Leader clearly communicates vision (Source: Author's construction)

The majority of respondents agree that leaders communicate a vision to employees that empower them to increase productivity. 25% of respondents and 55% of respondents respectively agreed and strongly agreed that leaders communicate vision that stimulate the increase of productivity. 15 % remained neutral. A total of 6% of respondents disagreed or strongly disagreed. The study shows also the mean of 4.26 with a standard deviation of 0.96 and the coefficient variance of 22.5%.

7.3 The Intellectual Stimulation

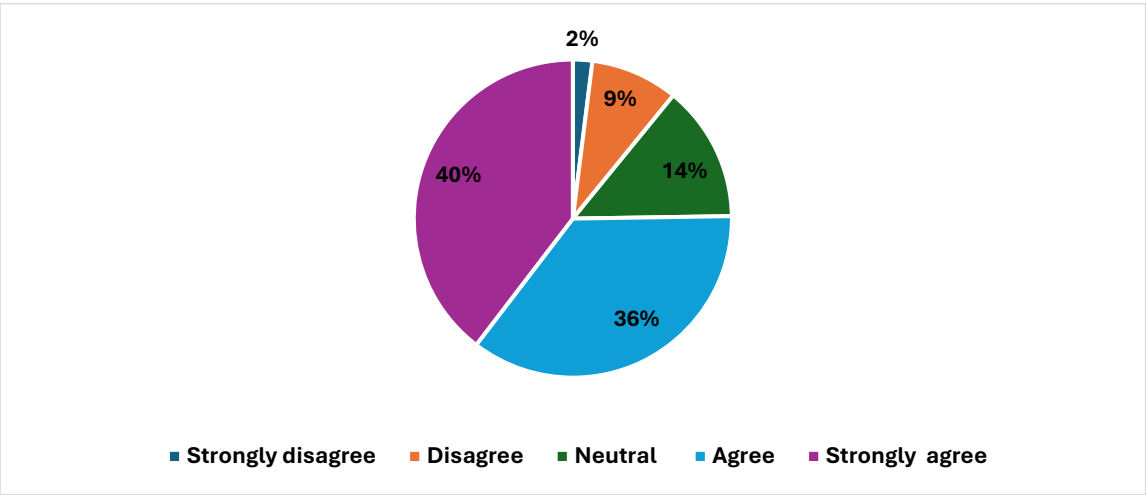


Figure 5: Leader encourages creative thinking and innovation (Source: Author's construction)

The results demonstrate that 40% of the respondents strongly agree and 36% agree that transformational leaders encourage employees to think creatively and innovate regarding the work-related matters. 14% of the responses remained neutral. 9% of respondents disagree and only 2% strongly disagree that leaders encourage the employees to innovate and to think creatively. The study shows also the mean of 4.02 with a standard deviation of 1.02 and the coefficient variance of 25.4%.

7.4 The individualised consideration

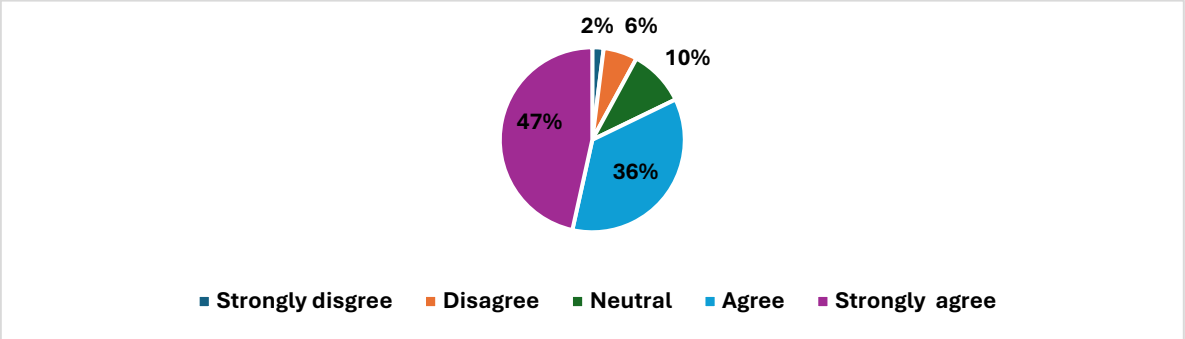


Figure 6: Leader provides personal support (Source: Author's construction)

The outcome of the study shows that a total of 83% of respondents are in the agreement that leaders are entitled to provide personal support and improve the work performance of employees in order to complete tasks efficiently and effectively. 10 % of respondents decided to remain neutral. 6% of respondents disagreed and 2% strongly disagreed.

8. Descriptive Statistics For Transformational Leadership Items

Table 2: Descriptive Statistics For Transformational Leadership Items

Item	Mean	Std Dev	CV
Q1	4.03	1.11	27.5%
Q2	4.26	0.96	22.5%
Q3	4.02	1.02	25.4%
Q4	4.01	1.12	27.9%
Average	4.08	1.05	25.8%

Cronbach's alpha was 0.87, indicating good internal consistency of the reported items. The KMO value was 0.78, indicating acceptable sampling adequacy for examining the correlation structure. Bartlett's test was conducted as part of the assessment of factorability; however, the exact chi-square statistic, degrees of freedom and p-value are not available in the results reported here and should be added from the original statistical output before final publication. No factor-loading results are reported, so no factor-analytic conclusion is drawn.

9. Summary of Findings

The findings show generally favourable perceptions of the four transformational leadership behaviours. For idealised influence, 76% of respondents agreed or strongly agreed that leaders act as role models. For inspirational motivation, 80% agreed or strongly agreed that leaders clearly communicate a vision. For intellectual stimulation, 76% agreed or strongly agreed that leaders encourage creative thinking and innovation. For individualised consideration, 83% agreed or strongly agreed that leaders provide personal support. The overall mean across the four items was 4.08. These findings indicate positive perceptions of transformational leadership behaviours among the respondents. They should not, however, be interpreted as demonstrating that transformational leadership caused higher employee productivity because an independent productivity outcome was not analysed in the reported dataset. The ANOVA result, $F(3,400)=0.68$, $p>0.05$, only indicates that mean ratings did not differ significantly across the four leadership items.

10. Discussion

The descriptive findings are consistent with the literature reviewed in this paper, which associates transformational leadership with motivation, innovation, support and positive employee outcomes. Respondents rated inspirational motivation most highly (M=4.26), suggesting that communicating a clear vision was especially visible in the study setting. Idealised influence (M=4.03), intellectual stimulation (M=4.02) and individualised consideration (M=4.01) were also rated favourably. These patterns are broadly consistent with work emphasising vision, creativity, mentoring and role modelling as important dimensions of transformational leadership (Afshari, 2022; Kaur Bagga, Gera and Haque, 2023; Njaramba, 2024). The findings nevertheless need to be interpreted within the limits of the research design. The questionnaire responses demonstrate perceptions of transformational leadership behaviours, but the reported analysis does not contain a separate productivity measure that can be statistically related to those behaviours. Consequently, the study cannot establish causal impact or quantify the strength of a leadership-productivity relationship. In addition, purposive sampling and the cross-sectional design restrict generalisability. Future studies should employ validated multi-item measures for each transformational leadership dimension and a separate employee productivity outcome, and should use correlation, regression or structural modelling, as appropriate, to test the proposed relationship directly.

11. Practical Implications

The results provide useful practical direction for managers even though they do not establish causality. Inspirational motivation recorded the highest mean score, suggesting that communicating a clear vision is a particularly visible feature of leadership in the study setting. Managers can build on this strength by translating organisational goals into clear team priorities, explaining how individual tasks contribute to those priorities, and providing regular feedback on progress. Vision is more likely to influence day-to-day work when employees can connect broad organisational objectives with concrete responsibilities. The favourable ratings for idealised influence, intellectual stimulation and individualised consideration also suggest areas for continued leadership development. Leaders can reinforce idealised influence by modelling ethical, consistent and accountable behaviour. Intellectual stimulation can be supported by inviting employees to propose improvements, question inefficient routines and participate in problem solving. Individualised consideration can be strengthened through coaching, development conversations and opportunities that respond to different employee capabilities. These practices are consistent with the broader literature linking transformational leadership with commitment, innovation, motivation and adaptive performance (Afshari, 2022; Njaramba, 2024). For organisational decision-making, leadership development should be accompanied by performance measurement. If the organisation wishes to determine whether transformational leadership improves productivity, future monitoring could combine a validated multi-item transformational leadership instrument with objective or independently rated indicators such as output volume, service turnaround time, quality, error rates or achievement of agreed performance targets. Analysing leadership and performance as separate constructs would allow management to identify whether stronger leadership perceptions are associated with stronger performance and whether particular transformational dimensions have greater practical relevance.

12. Limitations and Future Research

The study has several limitations that define the scope of its conclusions. First, the sample of 101 respondents was purposively selected, which supports access to relevant organisational participants but limits statistical generalisation beyond the study setting. Second, the study is cross-sectional and captures perceptions at one point in time. It therefore cannot demonstrate temporal precedence or establish that leadership behaviour preceded changes in employee performance. This cautious interpretation of cross-sectional evidence is consistent with Spector (2019). Third, the principal measures are self-reported perceptions. Survey research in which important constructs are obtained through the same response method may be vulnerable to common-method effects, and this reinforces the need for cautious interpretation of associations and perceived outcomes (Kaltsonoudi, Tsigilis and Karteroliotis, 2022). Fourth, the analysis reported in this paper does not include a separately operationalised productivity construct. This is the most important limitation in relation to the original framing of the study. Future research should distinguish transformational leadership clearly from employee productivity and should measure each with appropriate indicators. Longitudinal designs could examine whether changes in leadership perceptions are followed by changes in performance, while multi-source designs could combine employee perceptions of leadership with supervisor ratings, administrative records or objective operational measures. Where a sufficiently developed measurement model is available, correlation, multiple regression or structural equation modelling could then test the strength and direction of the proposed relationships. Future studies could also examine whether employee motivation, engagement, psychological

capital or innovative behaviour explains part of the relationship between transformational leadership and performance. Comparative research across organisational units or sectors would help establish whether the relative importance of the four transformational dimensions varies by work context. Such extensions would move the research from a descriptive assessment of leadership perceptions toward a more rigorous explanatory model of when and how transformational leadership contributes to productive employee behaviour.

13. Conclusion

This study explored respondents' perceptions of transformational leadership behaviours and their relevance to employee motivation, performance and productivity in the organisation. The results show strong agreement with behaviours associated with idealised influence, inspirational motivation, intellectual stimulation and individualised consideration. The findings therefore support the practical value of cultivating leadership behaviours that communicate vision, encourage creativity, provide individual support and model desired organisational values. However, the evidence presented is perceptual and descriptive and does not establish that transformational leadership causes increased employee productivity. Organisations may therefore consider leadership development programmes that strengthen these behaviours, while further research should directly measure employee productivity and test its statistical relationship with transformational leadership. Such analysis would provide a stronger basis for conclusions about organisational productivity and long-term performance.

Ethical Declaration: The paper is derived from a master's research at a local University. The Ethical Committee from the University issued a certificate of clearance granting permission for the research to be undertaken.

AI Declaration: Grammarly was used to assist with editing the paper's language. Besides that, there was no other use of AI in the paper.

References

Afshari, L. (2022). Idealized influence and commitment: A granular approach in understanding leadership. Personnel Review, 51(2), 805–822. https://doi.org/10.1108/PR-03-2020-0153

Bonini, A., Panari, C., Caricati, L., & Mariani, M. G. (2024). The relationship between leadership and adaptive performance: A systematic review and meta-analysis. PLOS ONE, 19(10), e0304720. https://doi.org/10.1371/journal.pone.0304720

Burns, J. M. (1978). Leadership. Harper & Row.

Engelsberger, A. (2025). How to Empower Employees for Innovation? In Management for Professionals (Vol. Part F452, pp. 57–72).

Fishbach, A., & Woolley, K. (2022). The structure of intrinsic motivation. Annual Review of Organizational Psychology and Organizational Behavior, 9, 339–363. https://doi.org/10.1146/annurev-orgpsych-012420-091122

Fisher, D. (2021). Educational leadership and the impact of societal culture on effective practices. Journal of Research in International Education, 20(2), 134–153. https://doi.org/10.1177/14752409211032531

Hakim, S., & Maunah, B. (2023). Karakteristik Kepemimpinan Tranformasional di Lingkungan Pesantren. Al Hikmah: Jurnal Studi Keislaman. AL HIKMAH Jurnal Studi Keislaman. ejournal.kopertais4.or.id.

Kaltsonoudi, K., Tsigilis, N., & Karteroliotis, K. (2022). Common method bias in research designs using self-report tools: Literature overview and recommended remedies. Psychology: The Journal of the Hellenic Psychological Society, 27(1), 210–231. https://doi.org/10.12681/psyhps.30843

Kassa, B. Y., & Worku, E. K. (2025). The impact of artificial intelligence on organizational performance: The mediating role of employee productivity. Journal of Open Innovation: Technology, Market, and Complexity, 11(1), 100474. https://doi.org/10.1016/j.joitmc.2025.100474

Kaur Bagga, S., Gera, S., & Haque, S. N. (2023). The mediating role of organizational culture: Transformational leadership and change management in virtual teams. Asia Pacific Management Review, 28(2), 120–131. https://doi.org/10.1016/j.apmrv.2022.07.003

Layek, D., & Koodamara, N. K. (2024). Motivation, work experience, and teacher performance: A comparative study. Acta Psychologica, 245, 104217. https://doi.org/10.1016/j.actpsy.2024.104217

Lu, J. G., Swaab, R. I., & Galinsky, A. D. (2022). Global leaders for global teams: Leaders with multicultural experiences communicate and lead more effectively, especially in multinational teams. Organization Science, 33(4), 1554–1573. https://doi.org/10.1287/orsc.2021.1480

Mayberry, M. (2024). The transformational leader: How the world's best leaders build teams, inspire action, and achieve lasting success. Wiley.

Njaramba, F. (2024). Transformational leadership in a crisis: Dimensional analysis with psychological capital. Heliyon, 10(16), e35900. https://doi.org/10.1016/j.heliyon.2024.e35900

Reinhardt, A. C., Leon, T. G., & Summers, L. O. (2022). The transformational leader in nursing practice: An approach to retain nursing staff. Administrative Issues Journal: Connecting Education, Practice, and Research, 12(1), 1–12.

Sengendo, D., & Eduan, W. (2024). Headteachers' transformational leadership and its influence on academic performance: A case of public secondary schools in Uganda. East African Journal of Education Studies, 7(1), 61–76. https://doi.org/10.37284/eajes.7.1.1705

Spector, P. E. (2019). Do not cross me: Optimizing the use of cross-sectional designs. Journal of Business and Psychology, 34, 125–137. https://doi.org/10.1007/s10869-018-09613-8

Urhahne, D., & Wijnia, L. (2023). Theories of motivation in education: An integrative framework. Educational Psychology Review, 35(2), Article 45. https://doi.org/10.1007/s10648-023-09767-9

Malta's Local Governance: Systemic Malaise, Centralization and Capacity Challenges

Mario Thomas Vassallo
Faculty of Economics, Management and Accountancy, University of Malta, Malta

mario.t.vassallo@um.edu.mt

Abstract: This study investigates governance failures in Maltese Local Councils between 2019 and 2024, arguing that recurrent maladministration reflects structural weaknesses inherent in Malta's model of weak devolution rather than isolated administrative lapses. A longitudinal analysis of National Audit Office (NAO) reports reveals persistent financial opacity, procurement irregularities, and escalating fiscal instability. Although some indicators show improvement, core failures remain entrenched. High rates of qualified audit opinions, recurring delays in financial reporting, and episodic disclaimers indicate systemic deficiencies in accounting practices and internal controls. Procurement breaches, including routine reliance on direct orders and inadequate documentation, are interpreted through Agency Theory as rational adaptations to fiscal uncertainty, administrative effort aversion, and rent-seeking opportunities within a weak control environment. Rising structural deficits and negative working capital further demonstrate that Councils operate within a restrictive fiscal architecture that denies them meaningful revenue-raising powers, rendering financial strain structurally predictable. The paper advances three theoretical propositions, namely the Fiscal Uncertainty Hypothesis, the Executive Hollow-Out Hypothesis, and the Proximity Hypothesis, to explain how weak devolution shapes observable patterns of failure. These propositions link audit outcomes to predictable structural incentives, showing that maladministration is not random but patterned. The study then evaluates the University of Malta's degree programmes as a capacity building mechanism, mapping curriculum learning outcomes against NAO-identified competence gaps. While programmes provide moderate to strong technical coverage, their impact is constrained by a governance environment that incentivises opacity, expediency, and clientelism. The paper concludes that human capital development is necessary but insufficient. Without structural reform granting Local Councils genuine fiscal and executive autonomy, educational interventions risk becoming compensatory rather than transformative. Future research should assess whether specialised training produces measurable improvements in audit outcomes and administrative behaviour, combining quantitative performance tracking with qualitative analysis of how graduates navigate Malta's micro-state political culture.

Keywords: Malta, Deconcentration, Financial opacity, Micro-state governance, Agency theory, Capacity building

1. Introduction

The Maltese Local Council system, established in 1993, was heralded as a democratic milestone, introducing multi-level governance and subsidiarity into a highly centralised micro-state (Baldacchino 2014; Cini 2001). Yet a longitudinal review of National Audit Office (NAO) reports reveals a widening gap between statutory obligations and operational reality. Recurring irregularities, from late financial submissions to procurement abuse, indicate entrenched governance failure rather than episodic administrative lapses.

These failures must be understood as outcomes of Malta's structural environment of weak devolution. In this context, devolution does not signify genuine decentralisation, where political authority and fiscal autonomy shift to the periphery, but administrative deconcentration which is a weaker form of decentralisation (Çiner 2023; Divay 2012). Under this model, Local Councils function primarily as delivery agents of the central state, lacking tax raising powers, executive sovereignty, and meaningful discretion over policy or resources (Rondinelli 1981). Responsibility is devolved, but power remains centralised, producing a governance deficit that systematically constrains council performance.

While literature on Maltese local governance offers valuable critiques of centralisation, it lacks longitudinal empirical data, theoretical models explaining recurring compliance failures, and evaluations of capacity-building responses. This study bridges these gaps by: (a) establishing a six-year longitudinal baseline (2019–2024) of audit outcomes across all 68 Local Councils; (b) applying Agency Theory to conceptualise maladministration as a rational adaptation to weak devolution; and (c) evaluating tertiary curricula against empirical competence deficits.

Guided by this rationale, the paper addresses three core research questions:

- Which governance failures appear most persistently in NAO audits between 2019 and 2024?
- To what extent can these failures be interpreted as rational adaptations to weak devolution rather than isolated incompetence?
- What forms of capacity building could plausibly mitigate these failures, and under what structural conditions would such interventions produce systemic improvement?

The paper addresses these questions by establishing an empirical baseline through NAO data, developing theoretical propositions to explain the structural drivers of failure, and evaluating the University of Malta (UM)'s pedagogical interventions as a potential remedial mechanism.

2. Methodology

This study analyses the divergence between statutory obligations and operational practice in Maltese local governance through a longitudinal qualitative review of NAO reports. Official NAO reports were selected over primary empirical methods (such as surveys or interviews) to mitigate response bias and social desirability effects, which are particularly acute in micro-state governance where non-compliance is politically sensitive. A longitudinal design was deliberately adopted to distinguish entrenched structural failure modes from transient operational anomalies, ensuring that theoretical propositions are grounded in pattern-based administrative evidence rather than episodic lapses. The core dataset consists of the *Report by the Auditor General on the Workings of Local Government* for the years 2020–2025 (covering financial years 2019–2024); selected as the authoritative record of local government performance.

The analysis proceeded in two stages. First, a thematic review identified recurring patterns of maladministration across the reporting period. The unit of analysis was the discrete audit observation, defined as each instance of non-compliance or administrative weakness flagged by the Auditor General. Observations were coded into three categories, namely (i) financial opacity, (ii) procurement irregularities, and (iii) structural insolvency.

Where findings spanned multiple dimensions, coding followed the primary procedural breach. Percentage counts were then generated by aggregating coded observations across all 68 Local Councils, enabling longitudinal tracking of failure modes. Regional Councils were excluded. Second, purposeful sampling was used to select illustrative Local Councils based on the severity and recurrence of audit findings. Birgu and Ħamrun were chosen to exemplify financial opacity, while St. Paul's Bay and Qala operationalized Agency Cost dynamics through violations involving direct orders and asset misuse. This approach grounds theoretical discussion in verifiable administrative evidence rather than abstract critique

3. Trends' Analysis

The trajectory of local governance documented in the selected reports shows a shift from administrative lethargy to financial instability. Audit compliance is assessed through the timeliness of financial statement submissions, the type of audit opinion issued, and councils' responses to auditors' management letters. Financial sustainability conditions are assessed through indicators such as structural deficits and negative working capital. Expressing the data as percentages of the total number of local councils enables consistent comparison across years and facilitates the identification of systemic trends rather than isolated cases

Table 1 presents a longitudinal overview of key audit outcomes and financial risk indicators reported by the NAO in relation to Malta's 68 local councils over the period 2019 to 2024. The indicators capture both audit process compliance and financial sustainability conditions, allowing for an assessment of governance quality and fiscal resilience at the local government level.

Table 1: Local government issues resulting from NAO audits

Issue	2019	2020	2021	2022	2023	2024
Delayed or no submission of financial statements	24%	26%	22%	12%	16%	13%
Qualified audit opinion	59%	59%	47%	46%	41%	47%
Disclaimer	3%	3%	0%	0%	0%	1%
No response to management letter	15%	15%	13%	6%	1%	0%
Structural deficit	37%	35%	16%	46%	60%	53%
Negative working capital	16%	15%	4%	12%	24%	26%

3.1 Financial Opacity

Delayed or non-submission of financial statements

Delayed or missing financial statements show gradual improvement across the review period but remain a persistent sign of administrative fragility. In 2019 and 2020, 24% and 26% of councils failed to submit on time, indicating entrenched compliance problems rather than isolated disruption. Pandemic-related interruptions and industrial action by the Chamber of Executive Secretaries (NAO 2021) contributed, yet the scale of non-submission highlights weak institutional resilience. Delays fall to 22% in 2021, followed by a more stable range of 12%–16% between 2022 and 2024.

Although the downward trend suggests stronger routines and oversight, the continued presence of late submissions among a minority of Councils points to structural weaknesses in financial management. These patterns align with Strategic Information Asymmetry: withholding or delaying financial data widens the monitoring gap between councils and central authorities, reducing scrutiny and enabling inefficiency or mismanagement (Fox 2007).

Serial non-compliant councils such as Birgu and Ħamrun illustrate this dynamic. In these cases, non-submission has become sustained opacity. The 2024 Disclaimer of Opinion for Birgu, due to missing opening balances, unrecorded grants, and fragmented records, marks a breakdown in auditability. This reflects not simply administrative failure but an Agent obstructing the Principal's oversight within a weakly devolved governance system (Smoke 2015).

Audit opinions and disclaimers

An audit opinion is the auditor's formal conclusion on whether financial statements present a true and fair view under the applicable reporting framework (IAASB 2020). In the public sector, it is a primary instrument for signalling accountability and reporting quality. Qualified opinions remain embedded, affecting 41%–59% of Councils annually. Incidence peaks at 59% in 2019 and 2020, declines to 47% in 2021, stabilises at 46% in 2022, reaches 41% in 2023, and rises again to 47% in 2024. A qualified opinion denotes material misstatements or scope limitations that are significant but not pervasive (IAASB 2020). Their sustained prevalence indicates systemic deficiencies in accounting practices, internal controls, and regulatory compliance rather than episodic reporting lapses. In analytical terms, this persistence reflects institutionalised weaknesses in local government financial management.

More severe is the Disclaimer. A disclaimer is issued when auditors cannot obtain sufficient evidence to form an opinion, typically due to gaps in records, documentation, or audit scope (IAASB 2020). It represents a collapse in auditability. Disclaimers are infrequent but consequential: 3% of Councils receive them in 2019 and 2020, none between 2021 and 2023, and 1% in 2024. Even at low incidence, disclaimers carry disproportionate weight because they undermine transparency, obstruct external oversight, and raise concerns regarding stewardship of public funds (INTOSAI 2019).

3.2 Response to Management Letters

The proportion of Councils failing to respond to management letters shows the most consistent and sustained improvement across all indicators. Non-response rates stand at 15% in both 2019 and 2020, fall to 13% in 2021, decline further to 6% in 2022, drop sharply to 1% in 2023, and reach 0% in 2024. This steady downward trajectory reflects a marked strengthening of administrative follow-through and engagement with the audit process.

Given that management letters formally communicate identified weaknesses and recommended corrective actions, improved responsiveness indicates strengthened procedural accountability and increased engagement with the audit process (INTOSAI 2019). However, responsiveness alone does not guarantee that corrective measures are effectively implemented. For this reason, the trend must be interpreted alongside financial outcome indicators, such as structural deficits and working-capital positions, which reveal whether improved engagement is translating into substantive improvements in financial management.

4. Procurement Irregularities as Agency Costs

The widespread bypassing of public tendering regulations in favour of direct orders is better interpreted as a rational expression of Agency Costs rather than a procedural lapse. Agency Theory holds that Agents (Councillors) diverge from the Principal's interest (fiscal efficiency) when incentives favour effort-aversion or rent-seeking and when sanctions for non-compliance are weak (Jensen and Meckling 1976). This divergence first appears as Effort Aversion, whereby Agents avoid the administrative burden of competitive tendering and rely

instead on the expediency of direct orders (Tirole 1986). The St. Paul's Bay Local Council provides a clear empirical instance: audit findings show direct orders becoming routine rather than exceptional, frequently breaching statutory thresholds for recurring services (NAO 2023). Here, administrative convenience is prioritised over the Principal's interest in competitive procurement and value for money.

Agency Costs also escalate into Rent-Seeking Behaviour, where Agents derive personal utility from public assets. Such behaviour depends on maintaining information asymmetry that shields the Agent from monitoring (Rose Ackerman 1999). The Qala Local Council exemplifies this dynamic: the purchase of an uninsured commercial vehicle and allegations of its personal use by the mayor (NAO 2025) were facilitated by the absence of logbooks; a deliberate omission that obscures asset utilisation. By withholding basic records, the Agent protects rent-seeking activity from oversight, illustrating how procurement irregularities can constitute calculated, rational choices within a weak control environment (Lambsdorff 2007).

5. Structural Deficit and Fiscal Challenges

Fiscal pressures on Maltese local councils stem not only from operational shortcomings but from structural constraints embedded within the governance model. Scholarship consistently characterises Maltese local government as a form of *trivial devolution*, where councils operate within a dual system that leaves central authorities dominant (Frendo 2010). This arrangement produces administrative dependence and limited fiscal autonomy, restricting councils' ability to generate sustainable revenue (Vella 2018). The Council of Europe similarly identifies inadequate funding and restricted revenue-raising powers as core barriers to effective local self-government (CLRACE 2024). Within such a framework, financial strain becomes structurally predictable rather than episodic.

Structural deficits, where recurrent expenditure exceeds sustainable revenue, illustrate this entrenched vulnerability. They affect 37% of Councils in 2019 and 35% in 2020, falling sharply to 16% in 2021, likely reflecting temporary fiscal support or short-term expenditure controls. From 2022 onward, however, deficits rise steeply: 46% in 2022, 60% in 2023, and 53% in 2024. This volatility indicates that earlier improvements were not anchored in durable institutional or fiscal reforms. Instead, the pattern reflects a persistent misalignment between statutory expenditure obligations and constrained revenue bases.

Negative working capital, a complementary indicator of short-term liquidity stress, follows the same trajectory. After standing at 16% in 2019 and 15% in 2020, it drops to 4% in 2021, then rises to 12% in 2022, 24% in 2023, and 26% in 2024. The concurrent deterioration in both structural deficits and liquidity positions underscores compounding fiscal pressures and raises concerns about Councils' ability to meet immediate obligations without central intervention.

Taken together, these trends demonstrate that Maltese local councils' financial difficulties are not isolated failures, but manifestations of a micro-state governance model characterised by limited fiscal autonomy, narrow revenue bases, and centralised control. Chronic vulnerability is structurally produced rather than administratively incidental.

5.1 The Myth of Local Government: Administration vs. Governance

A recurring theme in the literature is the distinction between Local Government and Local Administration. Contrary to Baldacchino (2014: 1), who argues that EU membership 'created a profligacy of decision-making tiers and multiplied tensions between different levels of governance', Pirotta (2001) maintains that the 1993 Maltese model was never intended to establish autonomous political authority. Instead of local self-government, the reform produced administrative deconcentration: a mechanism allowing Central Government to offload responsibilities (e.g. street maintenance, refuse collection, cultural activities) while retaining fiscal control and policy direction. Subsequent analyses reinforce this view, noting that central authorities justify the retention of strategic power through appeals to economies of scale and efficiency (Barber 2018).

This administrative fragility is strengthened by logistical arguments from the centre, which claims that procurement by 68 councils is inefficient. This narrative has legitimised a decade of recentralization (2015-2025), stripping councils of road maintenance (Infrastructure Malta), enforcement (LESA), and waste collection through regional governance introduced in 2000.

The erosion of executive competencies is mirrored by a restrictive financial architecture that contradicts the European Charter of Local Self-Government, ratified by Malta in 1993. Article 9 mandates that local authorities "shall be entitled… to adequate financial resources of their own" (Council of Europe 1985). Unlike other EU

states, Maltese Councils possess almost no fiscal autonomy, relying entirely on annual allocations that function as instruments of political control (Węglarz 2022). By denying Councils the ability to raise taxes or retain revenue, the state reduces them to dependent agents rather than autonomous polities. The reliance on direct orders cited by the NAO is a rational response to this uncertainty; Councils overspend late-allocated funds, prioritizing political survival over accounting standards.

5.2 Comparative Context: The Micro-state Governance Paradox

The structural fragility of Maltese local government aligns with comparative findings on small state governance. When viewed alongside similar jurisdictions, particularly Cyprus and small island states in the Caribbean, weak devolution reflects a broader Micro-State Governance Paradox. Within the EU, Cyprus provides the closest analogue. A 2021 European Commission assessment clusters Malta and Cyprus (with Ireland) as member states with the lowest levels of local self rule (Frendo 2010). In both island jurisdictions, municipalities function as administrative extensions of the centre, exercising minimal authority over policy or revenue. This contrasts with Luxembourg, which, despite comparable population size, maintains a tradition of communal autonomy and constitutionally protected local governance (Kettunen and Kall 2020). The comparison shows that although smallness creates logistical constraints, Malta's solid centralisation reflects a deliberate policy choice rather than an inevitable outcome of scale.

Against this backdrop, NAO-identified irregularities, particularly the abuse of direct orders, are better understood as symptoms of micro-state governance dynamics rather than isolated misconduct. Small jurisdictions naturally feature limited supplier pools and dense social networks, making conflicts of interest structurally embedded rather than exceptional. Malta's structural deficit mirrors a wider small state challenge: sustaining institutional buffers in contexts where social intimacy routinely erodes formal procedure.

6. Theoretical Propositions

To move this analysis from compelling narrative to auditable argument, it is necessary to distil the structural critique into explicit theoretical propositions. If the weak devolution hypothesis is correct, the audit failures documented by the NAO should not be random but should follow specific patterns predicted by the structural constraints.

6.1 Proposition 1: The Fiscal Uncertainty Hypothesis

The complete dependence on central allocation incentivizes short-term "spend-it-or-lose-it" behaviour, leading to procurement bypasses. The observable implication is that spikes in procurement irregularities will cluster around the financial year-end or immediately following the release of ad-hoc central grants (Hou and Moynihan 2008). This is corroborated by the St. Paul's Bay case, where direct orders were used systematically to expedite service delivery within tight fiscal windows, bypassing the slower tender process required by the central regulator.

6.2 Proposition 2: The Executive Hollow-out Hypothesis

The stripping of executive powers such as roads, enforcement, and waste collection to central or regional agencies continue to trivialise the role of Local Councils, producing administrative apathy and the collapse of record keeping disciplines. A clear correlation emerges between the centralisation of functions, exemplified by the establishment of Infrastructure Malta in 2018, and the deterioration of minor administrative outputs such as Fixed Asset Registers. As Peters (2018) argues, this cause-and-effect relation reflects mission shrinking, where the removal of substantive responsibilities erodes organisational motivation. The Birgu case, in which missing basic records resulted in a Disclaimer of Opinion, illustrates how an entity that sees itself as functionally irrelevant can lose the incentive to maintain even minimal administrative discipline.

6.3 Proposition 3: The Proximity Hypothesis

The micro-state's hyper-proximity between regulator and constituent raises the social cost of enforcement, leading to rent-seeking (Veenendaal 2015). The observable implication is that record-keeping gaps will occur specifically surrounding politically sensitive assets that offer personal utility (vehicles, community hall bookings) rather than neutral assets (streetlights, IT equipment). The Qala case regarding the unlogged use of a commercial vehicle supports this proposition; the administrative silence effectively shielded the personal use of a public asset from audit scrutiny.

7. The Human Capital Paradox: Educational Interventions vs. Structural Constraints

Malta's structural weaknesses in local government do not reduce the importance of human capital; weak devolution intensifies the effects of limited administrative competence. When inadequately trained officials operate within a system predisposed toward opacity, procedural shortcuts, and blurred authority, individual capacity constraints become structurally consequential. Reform must address not only institutional design but also the capabilities of the workforce embedded within these constraints. A pedagogical analysis follows naturally: if systemic weaknesses shape Council behaviour, the educational pipeline must be assessed for its ability to equip graduates to navigate and counteract the recurrent failure modes identified in NAO reports.

The UM is the primary intervention point for strengthening this capacity. Yet educational impact is conditioned by the governance environment. Capacity building can improve technical competence, but it cannot overcome structural incentives that make maladministration a rational organisational response. This tension makes it necessary to evaluate how well current degree programmes prepare graduates to operate within, rather than simply endure, Malta's weakly devolved political system. Determining whether UM programmes meet the sector's concrete capacity needs requires a shift from descriptive overview to a Pedagogical Mapping Analysis. This section distils four Competence Evaluation Criteria from NAO-identified failure modes and maps programme learning outcomes against them to identify alignment, partial coverage, and gaps.

7.1 Framework for Competence Evaluation and Curriculum Mapping

The analysis of NAO reports establishes four critical deficits that any capacity-building initiative must address, namely (i) accounting competence, (ii) procurement competence, (iii) internal control design, and (iv) ethics and standards compliance. The current academic framework at the UM attempts to address identified competence gaps, though its efficacy is arguably limited by the institutional environment in which graduates must operate. Table 2 illustrates the alignment between the identified failure modes and the specific learning outcomes of the relevant degree programmes.

Table 2: Alignment of NAO competence gaps with UM programmes

Criterion	NAO failure modes	Programme learning outcomes	Alignment
Accounting Competence	• Missing/incomplete asset registers • Unreconciled balances • Disclaimers • Late/non-submission of financial statements	**BA (Hons) Public Sector Accounting**: • Financial Reporting • Public Audit Assurance • Government Accounting Systems • Accrual-based reporting/IPSAS principles	**Moderate–Strong:** Robust technical content, but *structural disincentives* hinder application.
Procurement Competence	• Unapproved direct orders • Tender bypasses • Weak documentation • Breaches of statutory thresholds	**BA (Hons) Public Management:** • Procurement and Contracting • Project Management • Quality Management • EU Funding	**Moderate:** Solid theory, limited focus on *compliance culture* and *documentation discipline*.
Internal Control Design	• Poor segregation of duties • Missing approvals • Weak risk management • No response to management letters	**BA (Hons) Public Management:** • Strategic Management • Organisational Behaviour • Governance • Administrative Law	**Weak–Moderate:** Conceptual coverage but *lacks practical training* for small-unit control design.
Ethics and Standards Compliance	• Rent-seeking • Misuse of assets • Information asymmetry • Clientelism	**BA (Hons) Politics & Governance:** • Ethics • Good Governance • Policy Analysis • Political Behaviour/Institutions	**Moderate-Strong:** Solid normative base, but *daily clientelist pressures* are difficult to withstand.

The mapping demonstrates that while the UM provides partial coverage of the technical competencies required by Local Councils, the alignment is uneven. The strongest match lies in accounting competences and ethical standards of conduct, where specialised modules directly address NAO-identified weaknesses. Procurement and internal control competencies show only moderate alignment, reflecting a curriculum that emphasises managerial theory over compliance practice. Overall, the mapping reinforces the paper's central argument: capacity building can mitigate, but not resolve, the structural incentives that produce recurrent audit failures.

7.2 Addressing Financial Opacity: The BA (Hons) Public Sector Accounting

To address Criterion 1 (Accounting Competence), the *BA (Hons) Public Sector Accounting* curriculum emphasizes the regulatory environment of the state to bridge the gap between cash-based budgeting and international standards (UM 2025a). The programme includes specialized modules on Financial Reporting in the Public Sector and Public Audit Assurance. By focusing on accrual-based accounting, the course directly tackles the issue of unsubstantiated payables cited by the NAO. While the curriculum introduces accrual-based accounting to mitigate reporting failures, the 'spend-it-or-lose-it' fiscal environment creates a disincentive for the rigorous application of these standards. Moreover, even a degree in Public Sector Accounting cannot fix a "Disclaimer of Opinion" if the mayor refuses to sign off on a logbook.

7.3 Addressing Procurement and Control: The BA (Hons) Public Management

To address Criteria 2 and 3 (Procurement Competence and Internal Control), the *BA (Hons) Public Management* utilizes a New Public Management framework to professionalize the executive function (UM 2025b). The curriculum prioritizes Project Management and Quality Management as core competencies. This focus addresses the structural fiscal constraints by training students to manage External Funds (such as EU grants or Norwegian funding). The programme offers a pathway to financial agency that bypasses the restrictive central allocation system. Furthermore, strategic management modules aim to equip administrators with the capacity to design robust internal control systems, countering the administrative apathy described in the theoretical propositions.

7.4 Addressing Agency Costs: The BA (Hons) Politics and Governance

To address Criterion 4 (Ethics and Standards Compliance), the *BA (Hons) Politics and Governance* targets the normative culture of the public sector (UM 2025c). Responding to the clientelistic proximity inherent in the local political landscape, the curriculum integrates modules on Public Ethics, Good Governance, and the Rule of Law. The learning outcomes focus on instilling a democratic imperative that transcends the moral hazard of rent-seeking behaviour. By educating future policy advisors on the Standards in Public Life Act, the programme attempts to raise the social cost of non-compliance, fostering a political class that views transparency as a fundamental obligation to the electorate. Yet, learning public ethics may be ineffective if the clientelistic proximity of a micro-state exerts more pressure than a textbook ever could.

8. Conclusion

This study examined three core questions: the governance failures identified in NAO audits of Maltese Local Councils between 2019 and 2024; the extent to which these failures constitute rational adaptations to weak devolution rather than isolated administrative lapses; and the forms of capacity building capable of mitigating them. The analysis shows recurrent maladministration in financial opacity, procurement irregularities, and structural insolvency; patterns shaped by Malta's model of administrative deconcentration, where Councils carry statutory responsibilities without corresponding fiscal or executive autonomy.

The theoretical propositions developed here clarify these dynamics. The Fiscal Uncertainty Hypothesis links procurement bypasses to funding cycles; the Executive Hollow-Out Hypothesis associates declining administrative discipline with the erosion of Council functions; and the Proximity Hypothesis situates rent seeking and record keeping failures within micro-state political culture. Together, these propositions demonstrate that NAO-identified failures are structurally produced and therefore predictable.

Capacity building is necessary but insufficient. Strengthening accounting competence, procurement literacy, internal control design, and ethical standards can reduce vulnerabilities, and the UM plays a central role in this professionalisation. Yet graduates enter a governance architecture marked by restricted fiscal autonomy, blurred authority, and intense political pressures. Without structural reform granting Councils meaningful financial, executive, and institutional authority, capacity building risks becoming compensatory rather than transformative. Sustainable improvement requires simultaneous investment in human capital and the redesign of Malta's political and legal framework of local governance.

8.1 Future Research Agenda

To build upon these findings, future scholarship should pursue a threefold research agenda. First, longitudinal mixed-methods studies should evaluate the pedagogical dividend by comparing audit outcomes across Councils led by specialized public administration graduates versus generalist administrators. Second, qualitative agency testing is needed to examine whether professional training empowers Executive Secretaries to resist irregular direct orders and clientelistic pressures in micro-states. Finally, comparative research should examine whether fiscal decentralisation in other European micro-states counteracts proximity dynamics, clarifying if capacity building can substitute for structural reform.

Ultimately, improvements in professional capacity must be accompanied by legislative reform. Higher professional standards for officials require parallel increases in fiscal, executive, and administrative autonomy for Local Councils. Without both reforms, the benefits of capacity building will remain constrained.

Acknowledgements

I extend my gratitude to Auditor General, Mr Charles Deguara, and former Director General of the Local Government Division, Mr Natalino Attard, for their encouragement and valuable insights.

Research Ethics Declaration: Ethical clearance was not required for this research because data sets are published in official documents which are in the public domain.

Use of AI Declaration: AI tools (Microsoft Co-pilot and Gemini) were used to assist with summarizing and organisation. No AI system generated original scientific content or analysis. The author reviewed all text and accepted responsibility for the final manuscript

References

Baldacchino, G. (2014) “Malta transformed by multi-level governance: more than just an outcome of Europeanisation”, *Reflections of a Decade of EU Membership: Expectations, Achievements, Disappointments and the Future Occasional Papers*, 3, pp. 1–21.

Barber, S. (2018) *Seeking economies of scale to improve the financial sustainability of local councils* (Master’s dissertation), University of Malta, Msida.

Çiner, C.U. (2012) “Centralization and decentralization”, In *Global Encyclopedia of Public Administration, Public Policy, and Governance*, Springer, Berlin.

Cini, M. (2001) “The Europeanization of Malta: adaptation, identity and party politics”, In Featherstone, K. and Kazamias, G. (eds.), *Europeanization and the Southern Periphery*, Routledge, London.

Congress of Local and Regional Authorities of the Council of Europe (CLRACE) (2024) *Recommendation on Local Democracy in Malta*, Council of Europe, Strasbourg.

Council of Europe (1985) *European Charter of Local Self Government*, Council of Europe, Strasbourg.

Divay, G. (2012) “Deconcentration”, In Côté, L. and Savard, J.-F. (eds.), *Encyclopedic Dictionary of Public Administration*, [online], www.dictionnaire.enap.ca

Fox, J. (2007) “The uncertain relationship between transparency and accountability”, *Development in Practice*, 17(4–5), pp. 663–671.

Frendo, H. (2010) “Malta: local government: A slowly maturing process”, In Loughlin, J., Hendriks, F. and Lidström, A. (eds.), *The Oxford Handbook of Local and Regional Democracy in Europe*, Oxford University Press, Oxford.

Hou, Y. and Moynihan, D. (2008) “The case for countercyclical fiscal capacity”, *Journal of Public Administration Research and Theory*, 18(1), pp. 139–159.

International Auditing and Assurance Standards Board (2020) *Handbook of international quality control, auditing, review, other assurance, and related services pronouncements*, Vol. 1, International Federation of Accountants, New York.

International Organization of Supreme Audit Institutions (2019) *INTOSAI framework of professional pronouncements (IFPP): principles and standards*, INTOSAI General Secretariat, Vienna.

Jensen, M.C. and Meckling, W.H. (1976) “Theory of the firm: managerial behavior, agency costs and ownership structure”, *Journal of Financial Economics*, 3(4), pp. 305–360.

Lambsdorff, J.G. (2007) *The institutional economics of corruption and reform: theory, evidence and policy*, Cambridge University Press, Cambridge.

National Audit Office (NAO), Malta (2020) *Report by the Auditor General on the workings of local government for the year 2019*, NAO, Valletta.

National Audit Office (NAO), Malta (2021) *Report by the Auditor General on the workings of local government for the year 2020*, NAO, Valletta.

National Audit Office (NAO), Malta (2022) *Report by the Auditor General on the workings of local government for the year 2021*, NAO, Valletta.

National Audit Office (NAO), Malta (2023) *Report by the Auditor General on the workings of local government for the year 2022*, NAO, Valletta.

National Audit Office (NAO), Malta (2024) *Report by the Auditor General on the workings of local government for the year 2023*, NAO, Valletta.

National Audit Office (NAO), Malta (2025) *Report by the Auditor General on the workings of local government*, *for the year 2024,* NAO, Valletta

Peters, B.G. (2018) *The politics of bureaucracy: an introduction to comparative public administration*, Routledge, London.

Pirotta, G.A. (2001) "A new creation or an image and likeness? The Maltese experience of establishing local government in a centralized micro-state", *Public Organization Review*, 1, pp. 245–260.

Rondinelli, D.A. (1981) "Government decentralization in comparative perspective: theory and practice in developing countries", *International Review of Administrative Sciences*, 47(2), pp. 133–145.

Rose Ackerman, S. (1999) *Corruption and government: causes, consequences, and reform*, Cambridge University Press, Cambridge.

Smoke, P. (2015) "Rethinking decentralization: assessing challenges to a popular public sector reform", *Public Administration and Development*, 35(2), pp. 97–112.

Tirole, J. (1986) "Hierarchies and bureaucracies: on the role of collusion in organizations", *Journal of Law, Economics, & Organization*, 2(2), pp. 181–214.

University of Malta (2025a) *Bachelor of Arts (Honours) in Public Sector Accounting programme of study* , University of Malta, Msida. [online] https://www.um.edu.mt/courses/overview/ubahpsapte-2024-5-f/

University of Malta (2025b) *Bachelor of Arts (Honours) in Public Management programme of study*, University of Malta, Msida. [online] https://www.um.edu.mt/courses/studyunit/PPL3091

University of Malta (2025c) *Bachelor of Arts (Honours) in Politics and Governance programme of study,* University of Malta, Msida. [online] https://www.um.edu.mt/courses/overview/ubahpgoft-2026-7-o/

Vella, L.N. (2018) *The application of Article 81 of the Local Councils Act: a remedial intervention or an infringement of the local councils' fiscal autonomy?* (Master's dissertation), University of Malta, Msida.

Veenendaal, W. (2015) *Politics and democracy in microstates*, Routledge, London.

Węglarz, B. (2022) Local self-government in Malta – basic issues, *Revista de Ştiinţe Politice. Revue des Sciences Politiques*, 75, pp. 145–154.

From Economic Wealth to Multidimensional Sustainable Wealth: A New Business Management Model

Jose-Manuel Vega-Baez[1] and Berenice Juarez-Lopez[2]
[1]Tecnologico de Monterrey, Campus Laguna, School of Business, Torreon, Mexico
[2]Universidad Autonoma de Coahuila, Facultad de Economia y Mercadotecnia, Unidad Laguna, Torreon, Mexico

jmvegabaez@tec.mx
berenice.juarez@uadec.edu.mx

Abstract: Over the past two centuries, global economic activity has experienced unprecedented growth, largely measured through indicators such as Gross Domestic Product (GDP) and shareholder value. While this expansion reflects significant wealth creation, it has been accompanied by persistent social inequality and accelerated environmental degradation. This paradox reveals a fundamental limitation in the prevailing one-dimensional understanding of value, which prioritises economic outcomes while underrepresenting broader societal and ecological impacts. In response, this paper critically examines the conceptual boundaries of dominant frameworks, including Sustainable Business Models (SBM) and Environmental, Social and Governance (ESG) approaches. Although these perspectives represent important advances, they often remain fragmented, instrumentally applied, or insufficiently integrated into a coherent theory of value creation. This gap underscores the need for a more comprehensive and systemic approach to business management. Building on a qualitative, hermeneutic-interpretative methodology grounded in theoretical research and documentary analysis, we propose the concept of Multidimensional Sustainable Wealth (MSW) and develop a corresponding business management model. The proposed framework reconceptualises wealth as a multidimensional construct that integrates economic, human, functional, contextual and transcendental dimensions. This systemic articulation enables a more holistic understanding of how organisations generate and sustain value over time, particularly in complex and interdependent environments. Rather than treating profitability, responsibility and sustainability as separate domains, the model conceptualises them as mutually reinforcing dimensions of organisational purpose, performance and long-term legitimacy. The main contribution of this study is twofold. First, it advances the theoretical discourse by redefining the notion of wealth beyond traditional economic metrics. Second, it offers a structured conceptual model that positions the firm as a central agent in fostering sustainable and ethically grounded value creation, aligned with the principles of Corporate Social Responsibility (CSR). By reframing the purpose and scope of business management, this work provides a foundation for future empirical research and practical applications aimed at achieving a more balanced relationship between profitability, societal well-being and environmental sustainability.

Keywords: Multidimensional sustainable wealth, Sustainable business models, Corporate social responsibility, ESG, MSW model

1. Introduction

Over the past two centuries, business organisations have played a decisive role in the expansion of global economic activity. Industrialisation, technological innovation, global markets and managerial specialisation have increased productive capacity at an unprecedented scale. At the macroeconomic level, Gross Domestic Product (GDP) has been widely used to measure development. At the organisational level, profitability, growth and shareholder value have become dominant criteria for evaluating business success.

This paradigm has produced important achievements. Firms create employment, generate income, mobilise investment, develop products, pay taxes and accelerate innovation. However, economic expansion has also coexisted with social inequality, ecological degradation and short-term decision-making. If business success is measured mainly through economic indicators, many social and environmental consequences remain outside the core definition of value.

Different approaches have challenged this limitation. Stakeholder theory argued that firms must consider the interests of multiple groups affected by corporate decisions (Freeman, 1984). The Triple Bottom Line proposed economic, social and environmental performance domains (Elkington, 1997). Corporate Social Responsibility (CSR) emphasised ethical obligations beyond legal compliance and profit maximisation (Carroll, 1991). Shared value theory suggested that firms can create economic value while addressing social needs (Porter and Kramer, 2011).

More recent approaches have advanced the debate. Sustainable Business Models integrate social and environmental concerns into value creation (Bocken et al, 2014; Geissdoerfer et al, 2018), while ESG frameworks provide criteria for accountability, reporting and investment analysis. Nevertheless, conceptual gaps remain:

CSR may become peripheral, ESG may become compliance-oriented, and Sustainable Business Models may focus on value logic without fully redefining wealth.

This paper addresses that gap by proposing Multidimensional Sustainable Wealth (MSW) as the foundation for a business management model. Wealth is understood here as a systemic construct that includes economic, human, functional, contextual and transcendental dimensions. The article contributes by clarifying the limits of economic value, positioning MSW in relation to CSR, ESG and Sustainable Business Models, and proposing a structured model based on five dimensions of wealth.

2. Literature Review

2.1 The Economic Value Paradigm

Modern management has been strongly influenced by an economic value paradigm. At the macroeconomic level, GDP became a common measure of national progress. At the organisational level, financial performance became the dominant language for evaluating business success.

Economic indicators are measurable, comparable and useful for decision-making. However, they also create a reductionist view of value. GDP can show expansion without explaining distribution. Profitability can show efficiency without explaining social or environmental effects. Shareholder value can show investor return without capturing broader consequences.

This logic was reinforced by Friedman's (1970) argument that the social responsibility of business is to increase profits within the rules of the game and by Jensen and Meckling's (1976) agency theory. Profit remains necessary for business continuity, but it becomes problematic when treated as the exclusive definition of value.

2.2 Corporate Social Responsibility and Ethical Leadership

CSR emerged as a response to a narrow economic view of business. Carroll (1991) proposed that corporate responsibility includes economic, legal, ethical and philanthropic dimensions. Stakeholder theory similarly argued that firms must consider all groups who affect or are affected by corporate decisions (Freeman, 1984).

Recent ECMLG work reinforces this connection between responsibility and leadership. Achim et al (2025) examined diversity, equity and inclusion policies as mechanisms associated with sustainability performance, linking ethical leadership, governance and ESG performance.

These approaches broaden corporate purpose, but limitations remain. CSR may become philanthropy, public relations or voluntary reporting if it is not embedded in the firm's definition of value. Responsibility may then be added to the business model without transforming the concept of wealth.

2.3 Sustainability, Indicators and the Triple Bottom Line

The Brundtland Commission defined sustainable development as development that meets present needs without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987). This introduced an intergenerational view of responsibility.

The Triple Bottom Line translated sustainability into economic, social and environmental performance domains (Elkington, 1997). Its value lies in expanding performance beyond profit. However, it does not by itself explain how these domains are embedded in a wider management system that includes governance, organisational capabilities, culture, knowledge, strategy and legacy.

This limitation also appears in recent ECMLG discussions. Brusila-Meltovaara et al (2025) found that companies may face fragmented sustainability metrics and lack unified, purposeful and reliable indicators. Measurement therefore requires a conceptual structure that gives coherence to sustainability indicators.

2.4 Sustainable Value and Sustainable Business Models

Sustainable value and Sustainable Business Models represent important advances. Hart and Milstein (2003) argued that firms can create sustainable value by addressing present and future challenges such as pollution prevention, product stewardship, clean technology and sustainability vision. Dyllick and Muff (2016) distinguished business-as-usual, business sustainability and true business sustainability, showing that firms must address external sustainability challenges, not only internal benefits.

Sustainable Business Models explain how firms create, deliver and capture value while incorporating social and environmental concerns. Stubbs and Cocklin (2008) linked sustainability to organisational purpose and

operations. Bocken et al (2014) proposed archetypes for sustainable business model innovation. Geissdoerfer et al (2018) and Schaltegger et al (2016) connected business models for sustainability with strategy and organisational transformation.

These contributions are substantial, yet they do not fully resolve the problem addressed here. Hart and Milstein explain sustainable value creation, but not a multidimensional theory of organisational wealth. Dyllick and Muff clarify sustainability maturity, but not the internal configuration of wealth. Sustainable Business Models often focus on the business model as the unit of analysis, while a management model must also explain culture, talent, capabilities, governance, ecology and legacy.

2.5 ESG Frameworks and Governance

ESG frameworks have become important in corporate practice, investment analysis and accountability. They help investors, regulators and stakeholders assess environmental risks, social responsibilities and governance practices. Eccles et al (2014) associated strong sustainability policies with better organisational processes, while Friede et al (2015) reviewed evidence linking ESG factors and financial performance.

ESG makes sustainability visible, supports transparency and connects non-financial issues with risk management and governance. Recent ECMLG work also illustrates its relevance: Bojan and Lungu (2025) analysed governance and sustainability reporting tone, while Talha et al (2025) linked ESG-driven risk intelligence with CSR alignment and sustainable financial performance.

However, ESG remains primarily an assessment, reporting and accountability framework. A firm may improve disclosure and still lack a coherent management model connecting financial performance, human development, organisational capability, contextual responsibility and long-term contribution.

2.6 Conceptual Gap

The literature shows substantial progress. CSR and stakeholder theory expanded the social responsibilities of firms; the Triple Bottom Line introduced three performance domains; Hart and Milstein (2003) connected sustainability with strategic value; Dyllick and Muff (2016) clarified true business sustainability; Sustainable Business Models connected sustainability with value creation; and ESG made non-financial performance more visible.

The gap is therefore not the absence of sustainability frameworks. It is the absence of an integrated management construct that defines wealth as multidimensional, systemic and sustainable. Existing approaches usually focus on performance domains, maturity, reporting, governance, risk, strategy or business model innovation, rather than on the whole organisation as a wealth-generating system.

MSW responds by integrating these contributions into a broader framework. It situates economic value within a system of human, functional, contextual and transcendental wealth, moving from sustainability as reporting or business model innovation toward sustainability as a multidimensional theory of business management.

3. Methodology

3.1 Research Design

This paper follows a qualitative conceptual research design. Its purpose is not to test hypotheses or produce statistical generalisations, but to develop a theoretical model that explains how business management can move from economic wealth creation to MSW creation. Conceptual papers are appropriate when the objective is to clarify constructs, integrate literature and propose theoretical relationships (Torraco, 2005; Jaakkola, 2020).

The study uses a hermeneutic-interpretative logic. Business value, sustainability and wealth are treated as social, ethical and managerial constructs, not only as technical or financial categories. The model builds on prior doctoral research in which the original Riqueza Multidimensional Sostenible (RMS) Model was developed (Vega-Baez, 2025). Here, that model is translated, refined and positioned as the MSW Model.

3.2 Documentary Corpus and Source Selection

The documentary corpus was purposive rather than exhaustive. It was selected for conceptual relevance to the research question: how can business management be reframed from one-dimensional economic value creation toward multidimensional sustainable wealth creation?

The corpus included foundational works on economic value, shareholder value, stakeholder theory and CSR; literature on the Triple Bottom Line, sustainable value, Sustainable Business Models, ESG and true business

sustainability; methodological sources on conceptual papers; and selected ECMLG 2025 papers. The ECMLG papers were chosen because they addressed ethical leadership, sustainability indicators, governance reporting and ESG-driven risk intelligence. They were used as a focused dialogue with recent work in the conference community, not as a representative sample.

3.3 Analytical Procedure

The analysis followed four steps. First, the literature was examined to identify dominant assumptions about business value creation. This step distinguished economic, social, environmental, governance and long-term value perspectives.

Second, existing frameworks were compared to identify their contributions and limitations. Particular attention was given to the Triple Bottom Line, Hart and Milstein's sustainable value framework, Dyllick and Muff's typology of business sustainability, CSR, ESG and Sustainable Business Models.

Third, the conceptual categories of the RMS Model were reviewed considering this literature. The five dimensions were retained because each represents a distinct but necessary domain of organisational wealth: economic viability, human development, functional capability, contextual responsibility and transcendental contribution.

Fourth, the dimensions were integrated into the MSW Model. The aim was not to replace existing frameworks, but to organise them within a broader business management architecture.

3.4 Criteria for Conceptual Validity

Three criteria were used to assess the model. The first was theoretical coherence. Each dimension had to be supported by existing literature and had to contribute to the central construct of multidimensional wealth.

The second was integrative capacity. The model had to connect economic, human, functional, contextual and transcendental dimensions without reducing them to isolated indicators or disconnected sustainability practices.

The third was practical relevance. Each dimension had to represent a domain that managers can observe, discuss and eventually assess in organisational diagnosis, strategy, governance or sustainability planning.

These criteria do not provide empirical validation. They provide conceptual justification. Future research should test the model empirically and develop operational indicators for each dimension.

4. Results: Conceptual Development of the Multidimensional Sustainable Wealth Model

4.1 From Existing Frameworks to the MSW Model

The literature shows that business value has expanded from economic performance toward broader sustainability concerns. CSR introduced ethical and stakeholder responsibilities. The Triple Bottom Line added social and environmental domains. Sustainable value frameworks connected sustainability with strategy. Sustainable Business Models incorporated sustainability into value creation. ESG made non-financial performance more visible.

Nevertheless, these approaches do not fully define wealth as an integrated management construct. The MSW Model responds by organising value creation into five interconnected dimensions of organisational wealth. It does not replace CSR, ESG, Triple Bottom Line or Sustainable Business Models; it integrates their concerns into a wider business management architecture.

4.2 Defining Multidimensional Sustainable Wealth

Multidimensional Sustainable Wealth can be defined as the organisational capacity to generate, preserve and project value across economic, human, functional, contextual and transcendental dimensions in a balanced and sustainable manner over time.

This definition implies that wealth is not limited to financial accumulation, is created through multiple organisational domains and must remain sustainable over time. The MSW Model builds on the original RMS Model (Vega-Baez, 2025) and positions it in relation to international literature on sustainability, CSR, ESG and Sustainable Business Models.

4.3 Derivation and Theoretical Rationale of the Five Dimensions

The five dimensions were retained because each represents a distinct and necessary domain of organisational wealth. They were derived through conceptual synthesis between the RMS Model and the literature reviewed in this paper.

Economic Wealth refers to financial viability, productivity and resilience. It connects with economic value, shareholder value and sustainable value creation, but is treated as one dimension rather than the final purpose of the firm.

Human Wealth refers to people, culture, leadership, talent and shared identity. It is supported by stakeholder theory, CSR and ethical leadership, and reflects the idea that sustainability depends on human relationships inside the organisation.

Functional Wealth refers to organisational capabilities such as processes, knowledge, innovation, intelligence and strategy. It connects with Sustainable Business Models but extends beyond them by focusing on the internal capacities that transform resources into value.

Contextual Wealth refers to the social, institutional, ecological and governance environments in which firms operate. It includes stakeholder relationships, corporate governance, ecological responsibility and legitimacy, and connects directly with ESG and sustainability debates.

Transcendental Wealth refers to long-term purpose, legacy and intergenerational contribution. It is grounded in sustainable development, CSR and true business sustainability. The term is not used in a mystical sense, but to describe the organisation's capacity to create meaning, social contribution and legacy beyond short-term results.

4.4 The Ten Managerial Subdimensions

The five dimensions are operationalised through ten managerial subdimensions derived from the RMS structure (Vega-Baez, 2025).

Economic Wealth includes Basic Processes and Support Processes. These subdimensions refer to the activities that sustain the organisation's economic operation and enable continuity.

Human Wealth includes Corporate Culture and Corporate Talent. These subdimensions refer to shared values, identity, leadership, competencies and people development.

Functional Wealth includes Corporate Intelligence and Corporate Strategy. These subdimensions refer to the organisation's capacity to learn, interpret information, innovate, decide and execute.

Contextual Wealth includes Corporate Governance and Corporate Ecology. These subdimensions refer to decision-making structures, accountability, stakeholder relationships and ecological responsibility.

Transcendental Wealth includes Corporate Philanthropy and Corporate Legacy. These subdimensions refer to social contribution, long-term institutional memory, intergenerational impact and the meaning that the organisation projects beyond itself.

This structure allows organisations to evaluate their development not only through economic performance, but also through human, functional, contextual and transcendental forms of value.

4.5 The MSW Business Management Model

Figure 1 presents the conceptual structure of the proposed model. The organisation is placed at the centre, surrounded by the five MSW dimensions. Each dimension is supported by two managerial subdimensions. The model should be read as systemic rather than sequential: sustainable performance emerges from the interaction among economic viability, human commitment, functional capability, contextual responsibility and transcendental contribution.

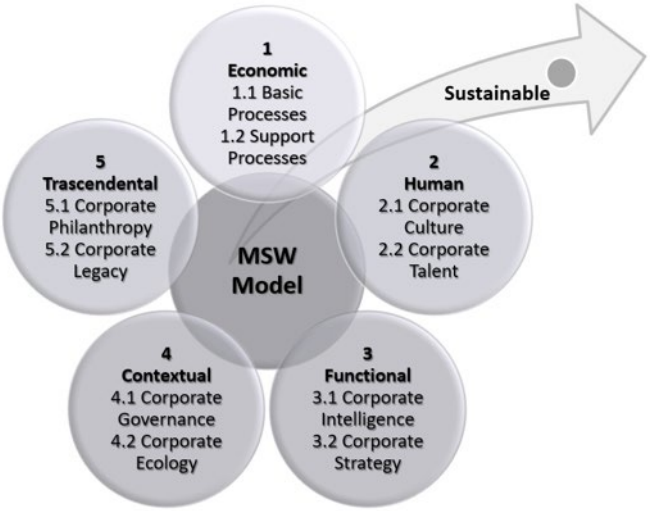


Figure 1: Multidimensional Sustainable Wealth Business Management Model

4.6 Comparative Analysis of Value Creation Frameworks

Table 1 compares the MSW Model with influential approaches to value creation: GDP-based Economic Value, Shareholder Value, Triple Bottom Line, Hart and Milstein's Sustainable Value, Dyllick and Muff's True Business Sustainability, ESG frameworks and Sustainable Business Models.

The MSW Model differs from these approaches by proposing a multidimensional and systemic understanding of wealth. Rather than focusing on one indicator, stakeholder group, reporting logic or business model, it integrates different forms of value into a unified management framework.

Table 1: Comparative Analysis of Value Creation Frameworks

Framework	Level	Main contribution	Limitation	MSW contribution
GDP-based value	Macroeconomic output	Measures aggregate economic performance	Ignores distribution, social impact and organisational wealth	Places economic value within a wider wealth system
Shareholder value	Investor return	Clarifies financial accountability	May reduce success to short-term return	Treats financial return as one dimension of wealth
Triple Bottom Line	Economic, social and environmental performance	Expands performance beyond profit	Identifies domains but not a complete management architecture	Integrates sustainability with human, functional, contextual and transcendental dimensions
Hart and Milstein	Strategic sustainable value	Links sustainability challenges with present and future value	Does not define wealth as a multidimensional organisational construct	Translates sustainable value into an integrated wealth model
Dyllick and Muff	Sustainability maturity	Distinguishes business-as-usual from true business sustainability	Does not specify the internal configuration of organisational wealth	Provides dimensions and subdimensions for managing sustainable wealth
ESG	Environmental, social and governance criteria	Improves reporting, accountability and risk visibility	May become fragmented or compliance-oriented	Connects ESG issues with a wider management model
Sustainable Business Models	Value creation, delivery and capture	Links sustainability with business model innovation	May not address the whole management system	Adds culture, talent, strategy, governance, ecology and legacy
MSW Model	Multidimensional sustainable wealth	Integrates economic, human, functional, contextual and transcendental value	Requires empirical validation and operational indicators	Provides a systemic framework for sustainable business management

5. Discussion

5.1 Theoretical Contribution

The main theoretical contribution of this paper is the reframing of business wealth as a multidimensional and sustainable construct. Previous frameworks have expanded business thinking beyond financial performance, but they usually emphasise specific aspects of sustainability: responsibility, environmental impact, governance, reporting, risk, strategy or business model innovation. MSW organises these concerns within a single management architecture.

The model does not reject economic value. It repositions economic performance as one dimension of wealth rather than its dominant definition. In doing so, it shifts the debate from value measurement to value meaning and clarifies how CSR, ESG, Sustainable Business Models, the Triple Bottom Line and sustainable value frameworks can be interpreted as partial contributions to a broader theory of organisational wealth.

5.2 Contribution to CSR, ESG and Sustainable Business Models

The MSW Model strengthens CSR by placing responsibility inside the definition of organisational wealth. It also gives ESG a broader conceptual foundation by connecting indicators with human, functional, contextual and transcendental forms of wealth. Similarly, it complements Sustainable Business Models by adding culture, talent, governance, strategy, organisational learning, ecology and legacy to the analysis of value creation.

5.3 Implications for Leadership and Governance

The model has direct implications for leadership and governance. Leaders are not only responsible for financial results; they are responsible for balancing multiple forms of wealth across time. This requires ethical judgment, systemic thinking and long-term orientation.

Governance also becomes broader. It is not limited to control mechanisms or shareholder protection, but includes guiding the organisation toward sustainable legitimacy. This means aligning economic performance with human development, stakeholder trust, environmental responsibility and social contribution.

This view is consistent with recent ECMLG discussions on leadership and sustainability performance (Achim et al, 2025), meaningful indicators (Brusila-Meltovaara et al, 2025), governance and sustainability reporting (Bojan and Lungu, 2025), and ESG-driven risk intelligence (Talha et al, 2025).

5.4 Managerial Implications

For managers, MSW offers a practical way to rethink organisational diagnosis and decision-making. It invites firms to ask whether they are creating wealth in only one dimension or across several dimensions, and to identify imbalances between profitability, people, capabilities, responsibility and legacy.

The model can support strategic reflection, sustainability planning, leadership development and governance improvement by moving organisations from isolated sustainability initiatives toward an integrated understanding of wealth creation.

6. Conclusions

This paper has addressed the limitations of a one-dimensional understanding of business wealth. Economic performance remains essential for organisational survival, but it is insufficient to explain the broader contribution of firms to society, the environment and future generations.

The paper proposed MSW as a conceptual business management model that integrates economic, human, functional, contextual and transcendental dimensions. The contribution is conceptual: MSW reframes wealth not as financial accumulation alone, but as a multidimensional and sustainable construct.

The model can help managers identify imbalances in organisational wealth creation and guide future diagnostic tools. However, it does not claim empirical validation. Future research should test the model in different organisational contexts and develop operational indicators for each dimension.

By redefining wealth as multidimensional and sustainable, the MSW Model offers a conceptual foundation for reimagining the firm as an ethical, strategic and systemic agent of long-term value creation.

Ethics Declaration: Ethical clearance was not required for the research.

AI Declaration: The structural editing of this paper was carried out by the authors. As non-native speakers of English, they used ChatGPT and Grammarly for translation, stylistic editing, and orthotypographic editing. The authors are fully responsible for the content and the final text.

References

Achim, R.A., Lungu, C.I., Caraiani, C. and Dascalu, C. (2025) "DEI Policies and Practices' Effect on Sustainability Performance: An Ethical Leadership Perspective", in Buisine, S. and Davies, M. (eds.) Proceedings of the 21st European Conference on Management Leadership and Governance, ECMLG 2025, Academic Conferences International Limited, Reading, pp 1-10.

Bocken, N.M.P., Short, S.W., Rana, P. and Evans, S. (2014) "A literature and practice review to develop sustainable business model archetypes", Journal of Cleaner Production, Vol 65, pp 42-56.

Bojan, A.M. and Lungu, C.I. (2025) "Does Corporate Governance Drive the Narrative Tone of Sustainability Reporting?", in Buisine, S. and Davies, M. (eds.) Proceedings of the 21st European Conference on Management Leadership and Governance, ECMLG 2025, Academic Conferences International Limited, Reading, pp 53-61.

Brusila-Meltovaara, K., Myyryläinen, H. and Katisko, M. (2025) "Sustainability Indicators in Practice: Insights from Expert Companies in Finland", in Buisine, S. and Davies, M. (eds.) Proceedings of the 21st European Conference on Management Leadership and Governance, ECMLG 2025, Academic Conferences International Limited, Reading, pp 69-76.

Carroll, A.B. (1991) "The Pyramid of Corporate Social Responsibility: Toward the Moral Management of Organizational Stakeholders", Business Horizons, Vol 34, No. 4, pp 39-48.

Dyllick, T. and Muff, K. (2016) "Clarifying the Meaning of Sustainable Business: Introducing a Typology From Business-as-Usual to True Business Sustainability", Organization & Environment, Vol 29, No. 2, pp 156-174.

Eccles, R.G., Ioannou, I. and Serafeim, G. (2014) "The Impact of Corporate Sustainability on Organizational Processes and Performance", Management Science, Vol 60, No. 11, pp 2835-2857.

Elkington, J. (1997) Cannibals with Forks: The Triple Bottom Line of 21st Century Business, Capstone, Oxford.

Freeman, R.E. (1984) Strategic Management: A Stakeholder Approach, Pitman, Boston.

Friede, G., Busch, T. and Bassen, A. (2015) "ESG and financial performance: aggregated evidence from more than 2000 empirical studies", Journal of Sustainable Finance & Investment, Vol 5, No. 4, pp 210-233.

Friedman, M. (1970) "The Social Responsibility of Business is to Increase its Profits", The New York Times Magazine, 13 September, pp 32-33, 122-126.

Geissdoerfer, M., Vladimirova, D. and Evans, S. (2018) "Sustainable business model innovation: A review", Journal of Cleaner Production, Vol 198, pp 401-416.

Hart, S.L. and Milstein, M.B. (2003) "Creating sustainable value", Academy of Management Executive, Vol 17, No. 2, pp 56-69.

Jaakkola, E. (2020) "Designing conceptual articles: four approaches", AMS Review, Vol 10, pp 18-26.

Jensen, M.C. and Meckling, W.H. (1976) "Theory of the firm: Managerial behavior, agency costs and ownership structure", Journal of Financial Economics, Vol 3, No. 4, pp 305-360.

Porter, M.E. and Kramer, M.R. (2011) "Creating Shared Value", Harvard Business Review, Vol 89, No. 1/2, pp 62-77.

Schaltegger, S., Hansen, E.G. and Lüdeke-Freund, F. (2016) "Business Models for Sustainability: Origins, Present Research, and Future Avenues", Organization & Environment, Vol 29, No. 1, pp 3-10.

Stubbs, W. and Cocklin, C. (2008) "Conceptualizing a Sustainability Business Model", Organization & Environment, Vol 21, No. 2, pp 103-127.

Talha, M., Faisal, S.M. and Khan, A.K. (2025) "Integrating ESG-Driven Risk Intelligence: A Strategic Framework for Sustainable Financial Performance and CSR Alignment in Emerging Economies", in Buisine, S. and Davies, M. (eds.) Proceedings of the 21st European Conference on Management Leadership and Governance, ECMLG 2025, Academic Conferences International Limited, Reading, pp 327-335.

Torraco, R.J. (2005) "Writing integrative literature reviews: Guidelines and examples", Human Resource Development Review, Vol 4, No. 3, pp 356-367.

Vega-Baez, J.M. (2025) Diseño de un modelo de gestión empresarial para generar riqueza multidimensional sostenible, Doctoral thesis, Universidad Iberoamericana Torreón, Torreón, Mexico.

World Commission on Environment and Development (1987) Our Common Future, Oxford University Press, Oxford.

Digital Twins as Governance Infrastructures in UNESCO Low-density Landscapes

Ana Vieira Martins, Lucília Ribeiro and Elisabete Nogueira
Research on Economics, Management and Information Technologies (REMIT), Portucalense University, Porto, Portugal

anaavieiramartins@gmail.com
ribeiro.lucilia@gmail.com
enogueira@upt.pt

Abstract: Low-density regions often host culturally significant heritage assets with high social, symbolic, and economic value, but yet these resources remain underused because of weak coordination, limited visibility, and institutional fragmentation. This study addresses to that problem by conceptualizing the economy of forgetfulness as a governance condition in which dispersed heritage gradually loses salience in policy agendas and public investments due to persistent visibility deficits. It argues that digital twins should be understood not merely as a technical tool for documentation or monitoring, but as a strategic governance infrastructure that can reactivate dormant heritage and improve policy action in territorially fragmented settings. The study develops a theory-building comparative framework that traces how digital visibility can translate into governance outcomes through a sequential process, while showing that the economy of forgetfulness moderates the all process. To ground this argument, it uses UNESCO-listed cases - Douro Valley, Genoa, Sintra, and Pompeii - illustratively rather than as empirical tests, highlighting differences in institutional density, coordination capacity, and digital readiness. Selective reference is made to high-visibility contexts such as Notre-Dame to explore transferability, adaptation, and scaling without assuming direct replication. Where baseline visibility is low and neglect is high, digital interventions are expected to exert stronger effects on awareness, suggesting particularly high policy value in peripheral regions. These cases illustrate how digital twins' applications may reduce decision latency, uncover latent coordination potential, and support more effective governance across territorial contexts. Because the cases are illustrative rather than empirical, they clarify framework plausibility and transferability under adaptation rather than replication. The study's policy contributions are threefold: it reframes digital twins as a heritage activation infrastructure; it proposes an operationalizable moderated visibility-awareness mechanism expandable to full sequential paths; and it positions the economy of forgetfulness as a policy-shaping condition for territorial cohesion, development, and governance in marginalized regions.

Keywords: Digital twins, Heritage governance, Low-density regions, Economy of forgetfulness, Institutional logics, UNESCO

1. Introduction

Low-density regions (LDRs), as defined in Portugal by Portaria 208/2017, combine demographic sparsity with institutional fragmentation. They often contain culturally significant heritage assets with high symbolic, social, and economic value, yet these assets remain underutilized because they are weakly connected to coordination mechanisms, policy attention, and digital infrastructures that can support collective action (Mourão, 2020; Sánchez-Carreira, Reis Mourão and Blanco-Varela, 2023). This is not simply a problem of scarcity, but a governance failure in which heritage value exists without corresponding institutional mobilization.

We conceptualize this condition as an economy of forgetfulness: a governance dynamic in which dispersed heritage progressively loses salience in policy agendas and collective investment because of persistent visibility deficits (Mourão, 2020). In this paper, the concept serves as both a boundary condition and an explanatory lens for understanding why high-value heritage may remain institutionally invisible despite its cultural significance.

Within this context, digital twins (DTs) should be understood not merely as documentation or visualization tools, but as change infrastructures capable of enhancing visibility, supporting shared interpretation, and reducing informational frictions across fragmented actor networks (Chioni, Pezzica and Favargiotti, 2024; Mammone, Binetti and Massarelli, 2026). High-profile applications such as Notre-Dame show the technical potential of DTs for reconstruction and coordination, but they offer limited insight into how such affordances operate under conditions of institutional scarcity, lower visibility, and weaker governance capacity (Lister, Nash and Ledingham, 1951; Gagua et al., 2025). For that reason, analogies from high-capacity environments must be treated cautiously and adapted to the realities of LDRs.

Despite growing interest in digital heritage, the literature still lacks a clearly specified conceptual and comparative framework explaining how digital infrastructures shape governance dynamics across different institutional densities. This study addresses that gap through a theory-building, comparative, and theoretically

illustrative framework that conceptualizes DTs as change infrastructures. It proposes a sequential mechanism through which digital visibility increases stakeholder awareness, stimulates engagement, improves coordination, and gradually supports the institutionalization of innovation as a territorial capability.

Accordingly, the study is guided by two focused research questions:

RQ1: How do DT affordances influence the relationship between visibility, stakeholder awareness, and coordination in heritage governance?

RQ2: How does the economy of forgetfulness condition the effectiveness of digital visibility in LDR and institutionally fragmented contexts?

To illustrate and structure variation, the study adopts a comparative design based on UNESCO -listed cases - Douro Valley, Genoa, Sintra, and Pompeii - used as analytically structured examples rather than sources of causal inference. These cases allow the framework to be examined across different levels of institutional density, governance fragmentation, and digital readiness. Selective reference to high-visibility contexts such as Notre-Dame is used only to explore transferability across institutional settings, not to imply direct replication.

The study makes three contributions: it reframes DTs as governance infrastructures for heritage activation rather than as purely technical tools; it develops an operationalizable sequential mechanism linking digital visibility to institutional outcomes; it defines the economy of forgetfulness as a boundary condition shaping regional policy effectiveness, with implications for cohesion, territorial innovation, and development in marginalized regions.

2. Literature Review

This study is grounded in the premise that heritage governance is shaped not only by asset value, but also by the institutional logics that govern how value becomes visible, prioritized, and acted upon. In LDRs, heritage assets may possess strong symbolic, social, and economic significance, yet their activation is constrained by governance norms that privilege preservation over transformation and continuity over adaptation, intensified by demographic sparsity, administrative fragmentation, and limited fiscal capacity (Barney, 1991; Graham, Ashworth and Tunbridge, 2016; Mourão, 2020; Vale et al., 2024; Audretsch and Kariv, 2025). Within this context, the economy of forgetfulness can be understood as a governance-level mechanism of selective attention allocation: some heritage assets are not simply overlooked, but systematically deprioritized because their visibility, salience, and institutional support remain weak over time (Münch, Benz and Hartmann, 2022; Pedraza-Rodríguez et al., 2023; Sánchez-Carreira, Reis Mourão and Blanco-Varela, 2023). Forgetfulness is therefore an emergent property of governance systems under scarcity rather than an inherent attribute of the heritage asset itself.

Dynamic capabilities theory provides a complementary lens for explaining how digital infrastructures may alter this condition. It suggests that organizational and territorial performance depends on the capacity to sense, seize, and reconfigure resources in response to changing environments (Teece, Pisano and Shuen, 1997). Applied to heritage governance, this perspective implies that digital visibility alone is insufficient unless it can be converted into shared awareness, coordinated action, and routinized institutional adaptation. DTs can be read as governance infrastructures because they do not merely represent assets; they can also reorganize information flows, reduce informational friction, and support collective interpretation across fragmented actor networks (Thornton and Ocasio, 2008; Thornton, Ocasio and Lounsbury, 2012). The theoretical implication is that DTs matter most when they function as bridging infrastructures between visibility and governance action.

The literature on DTs has expanded rapidly, especially in relation to monitoring, simulation, documentation, and decision support for physical and cultural assets. Recent studies confirm the value of DTs for conservation, performance tracking, and operational management, particularly where spatial complexity and asset fragility require detailed digital representation (Shabani et al., 2022; Pletsch et al., 2026; Qian et al., 2026). However, this body of work remains predominantly artefact-centered, giving substantial attention to data quality, technical architecture, and system fidelity, but paying less attention to how digital systems interact with institutional logics, power relations, and attention allocation.

High-profile examples such as Notre-Dame demonstrate that DTs can support multi-actor coordination and recovery in resource-rich and highly visible settings, but such cases operate under conditions of stronger institutional capacity, greater policy attention, and denser coordination networks than those typically found in low-density territories (Gagua et al., 2025). For this reason, the transferability of those experiences to fragmented territorial contexts must be treated cautiously. What is needed is a conceptual shift from viewing

DTs as technical artifacts to understanding them as governance infrastructures that shape how visibility is translated into collective action.

Research on public innovation and institutional change helps explain why governance systems differ in their ability to absorb and use digital tools. From this perspective, innovation is not simply the introduction of a new technology, but a change in routines, coordination structures, and organizational capabilities (Teece, Pisano and Shuen, 1997). In low-density heritage territories, this matters because institutional fragmentation often weakens the channels through which information becomes action. Even when digital tools are present, their impact depends on whether they can be embedded in recurring governance practices that support cooperation across actors and scales.

This literature therefore clarifies the mechanism through which DTs may matter beyond documentation: if DT-generated visibility can strengthen awareness, then awareness may support engagement, and engagement may improve coordination and institutional learning. Yet this sequence remains underdeveloped in the heritage governance literature, particularly in settings marked by sparse institutional capacity and uneven digital readiness.

Studies of forgetfulness and selective neglect provide the final strand needed to explain why some heritage assets remain marginal despite their value. These works show that cultural assets can lose salience over time when they are repeatedly absent from decision agendas, investment cycles, and public narratives (Mourão, 2020; Sánchez-Carreira, Reis Mourão and Blanco-Varela, 2023). In this sense, neglect is not merely accidental; it becomes cumulative and structural, gradually reducing visibility and weakening the institutional conditions required for heritage activation. By combining the economy of forgetfulness with the notion of DTs as governance infrastructures, the study explains how visibility may become a trigger for awareness, coordination, and institutional change.

Taken together, these four strands clarify important parts of the problem, but none fully explains how digital visibility becomes governance action under conditions of institutional scarcity. Existing research remains fragmented between technical studies of DTs, value-based accounts of heritage, theories of institutional change, and analyses of neglect. What is still absent is a framework that links digital visibility, stakeholder awareness, coordination, and territorial innovation within the specific conditions of low-density heritage governance.

3. Methodology

This study adopts an abductive, theory-building, and comparative-illustrative approach to conceptualize DTs as governance infrastructures in low-density heritage regions (Whetten, 1989; Langley, 1999; Ketokivi and Mantere, 2021). Its purpose is not to estimate causal effects empirically, but to develop a conceptually coherent and operationally specifiable framework for understanding how digital visibility may translate into governance action under conditions of institutional scarcity. The study therefore follows a conceptual design grounded in iterative theory development rather than empirical hypothesis testing.

3.1 Research Design

The research design was built through the synthesis of fragmented literatures on heritage governance, DTs, public innovation, institutional logics, and the economy of forgetfulness. This integration was used to identify recurring explanatory gaps and to build a conceptual framework linking digital affordances to institutional outcomes. The resulting design is explicitly conceptual and comparative-illustrative: it uses evidence-informed vignettes to clarify plausibility and scope, but it does not claim statistical validation or causal identification. This approach is consistent with process-oriented theory building, where the goal is to generate a parsimonious and logically ordered explanation from multiple strands of prior work (Langley, 1999; Ketokivi and Mantere, 2021).

3.2 Model Development Through Abductive Comparison

The framework was developed through an abductive process of moving back and forth between theory and empirical illustration. First, the core constructs were identified and refined from the literature: digital visibility, awareness, engagement, coordination, innovation culture, and the economy of forgetfulness. Second, these constructs were compared across related conceptual domains to determine how they could be connected into a coherent explanatory sequence. Third, the resulting framework was checked against illustrative heritage cases to assess whether the proposed relationships were internally consistent and theoretically plausible. This process follows established logic in abductive and process research, in which theoretical refinement emerges

through repeated comparison between concepts, cases, and prior explanations regions (Whetten, 1989; Langley, 1999; Ketokivi and Mantere, 2021).

3.3 Comparative-illustrative Case Strategy

The study adopts UNESCO cases as illustrative vignettes rather than as units of causal inference. Their purpose is to clarify how the proposed DT mechanism may operate differently across governance contexts characterized by variation in institutional density, coordination capacity, digital readiness, and governance fragmentation. In this sense, the comparative strategy strengthens the conceptual argument by showing transferability through adaptation rather than replication of a flagship model.

Douro Valley is retained as the core transfer case because it combines low institutional density, territorial dispersion, fragmented governance, and emerging digital heritage initiatives. This makes it particularly suitable for examining how DTs may produce strong relative effects where baseline visibility and coordination are limited. Genoa and Sintra represent intermediate cases in which coordination capacity and digital readiness are more developed, but still uneven enough to test how the mechanism behaves under partial institutional support. Pompeii illustrates a high-value heritage setting with strong visibility but complex multi-level governance, where DTs are expected to support rather than initiate governance change. Notre-Dame is retained as a high-visibility benchmark, useful for understanding how DTs operate in a highly resourced and institutionally dense context, but with limited direct transferability to low-density territories.

To make this comparison explicit, Table 1 presents the cases as an illustrative analytical matrix for framework development.

Table 1: Comparative UNESCO cases as illustrative anchors for framework development

Case	Institutional density	Coordination capacity	Digital readiness	Forgetfulness level	Expected DT effect
Douro Valley	Low	Weak (multi-municipal)	Emerging	High	Strong (low baseline)
Genoa	Medium	Moderate	Moderate	Medium	Moderate
Sintra	Medium-High	Strong (national)	Advanced	Low-Medium	Incremental
Pompeii	High	Complex (multi-level)	High	Low	Supportive
Notre-Dame	Very High	Excellent	Very High	Very Low	Benchmark

The cases vary systematically across institutional density, coordination capacity, digital readiness, and forgetfulness level, allowing the framework to be interpreted across distinct territorial configurations. Douro Valley corresponds to low density, weak multi-municipal coordination, emerging digital readiness, and high forgetfulness, which implies a strong expected DT effect because even modest gains in visibility may overcome structural invisibility. Genoa is positioned at a medium level across the dimensions, suggesting a moderate DT effect. Sintra reflects medium-high institutional density with stronger coordination and advanced digital readiness, but lower forgetfulness, which implies more incremental effects. Pompeii combines high institutional density with complex multi-level governance and high digital readiness, so DTs are expected to function as supportive governance tools. Notre-Dame represents the benchmark case: very high institutional density, excellent coordination capacity, very high digital readiness, and very low forgetfulness, which implies a strong symbolic baseline but more limited interpretive value for low-density transfer settings.

This comparative logic sharpens the framework's scope and boundary conditions. Rather than assuming universal applicability, the study argues that DTs generate the strongest relative governance effects where forgetfulness is highest and baseline coordination capacity is lowest (Mourão, 2020; OECD, 2025c, 2025b, 2025a). The comparative design therefore stabilizes the framework conceptually while preserving its contextual sensitivity.

4. Results and Discussion

This study conceptualizes DTs as change infrastructures that reconfigure how heritage becomes visible, interpretable, and governable in low-density territorial settings, rather than as technical artefacts confined to documentation or simulation purposes (Thornton and Ocasio, 2008; Thornton, Ocasio and Lounsbury, 2012; Musiani et al., 2016; Bratton, 2019). DTs do not simply represent heritage assets; they alter the informational

conditions under which those assets enter governance attention and collective action. Their relevance in UNESCO low-density landscapes lies in their capacity to reduce informational asymmetries, make dispersed heritage legible, and counter the economy of forgetfulness that weakens policy salience and institutional responsiveness (Sánchez-Carreira, Reis Mourão and Blanco-Varela, 2023). Therefore figure 1 presents the conceptual framework captures as a sequential governance mechanism in which DT-enabled visibility is the first step, shared awareness the second, stakeholder engagement the third, cross-actor coordination the fourth, and the institutionalization of innovation culture the final outcome.

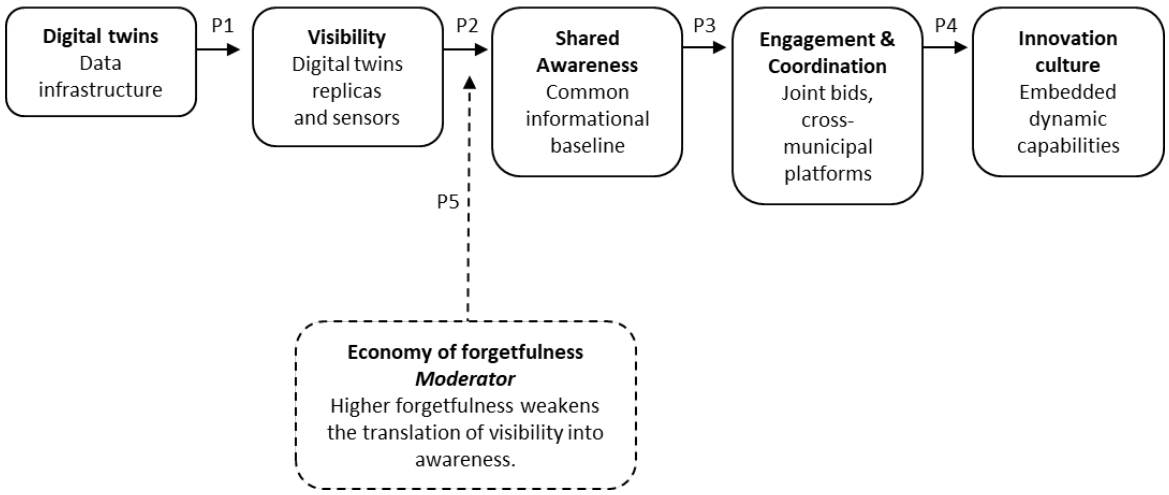


Figure 1: Conceptual framework

The framework is sequential, but not mechanically linear. The first transition is from DT to visibility: when heritage is digitally represented and cognitively accessible, it becomes more observable to relevant actors across institutional levels (Shabani et al., 2022). Visibility is thus a governance condition that makes neglected heritage cognitively present and politically available. Once visibility is established, it can be converted into shared awareness, understood as a common recognition among stakeholders that a given asset or territorial issue is relevant, legitimate, and worthy of collective attention (Pletsch et al., 2026). Shared awareness then provides the cognitive basis for engagement, because actors are more likely to participate when the object of action is jointly recognized as a common concern. In this sense, DTs function as bridging infrastructures that move heritage from digital legibility to collective governance capacity (Sicilia and Palazón, 2023; Teece, Pisano and Shuen, 1997).

4.1 Propositions and measurability

The framework advances five propositions and one boundary condition. All are derived from a common mechanism in which DTs first generate visibility, then enable shared awareness, and subsequently support governance coordination. The propositions are theoretically grounded and empirically tractable, allowing future research to examine the model through observable indicators. Their sequence is cumulative: each step depends on the prior one, but each can also be measured independently.

P1. *Higher levels of DT-enabled visibility are positively associated with stakeholder visibility.*

At the first stage, the DT makes heritage more visible through digital representation, platform access, spatial visualization, and repeated exposure. Visibility may be operationalized through platform reach, frequency of digital encounters, access intensity, content circulation, or stakeholder exposure to the DT environment (Shabani et al., 2022). The core claim is that DTs increase the likelihood that heritage assets will be noticed and cognitively registered by relevant actors, especially where baseline salience is weak.

P2. *Higher levels of visibility are positively associated with shared awareness among stakeholders.*

Once heritage becomes visible, it may be converted into shared awareness, understood as a common recognition of the asset's existence, relevance, and governance significance. Shared awareness may be measured through convergence in stakeholder perceptions, issue recognition, salience alignment, or evidence of a common interpretive frame across actors. Visibility alone is insufficient unless it produces intersubjective

recognition. In low-density heritage contexts, this step is critical because it transforms dispersed information into a shared cognitive basis for action (Pletsch et al., 2026).

P3. *Higher levels of shared awareness are positively associated with stakeholder engagement.*

Shared awareness creates the relational and normative conditions for participation by reducing uncertainty about relevance and legitimacy. Engagement may be operationalized through participation frequency, meeting attendance, response intensity, collaborative contributions, or involvement in governance processes. When stakeholders recognize a heritage issue as collectively meaningful, they are more likely to invest time, attention, and effort in addressing it (Sicilia and Palazón, 2023).

P4. *Higher levels of stakeholder engagement are positively associated with stronger cross-actor coordination.*

Engagement becomes governance-relevant when it is sustained enough to produce routine interaction, trust, and mutual adjustment. Coordination may be measured through inter-organizational collaboration, joint planning, shared data use, co-produced initiatives, or the regularity of collective decision-making practices. Repeated engagement lowers transaction costs and enables actors to align expectations across organizational boundaries (Teece, Pisano and Shuen, 1997; Warner and Wäger, 2019).

P5. *Higher levels of cross-actor coordination are positively associated with the institutionalization of territorial innovation culture.*

Sustained coordination can embed adaptive routines, collaborative norms, and problem-solving practices within the territorial system. Innovation culture may be operationalized through the frequency of adaptive initiatives, the persistence of experimentation, the routinization of collaborative governance, or the institutionalization of learning-oriented practices over time. Innovation culture is thus the product of repeated coordination that becomes normalized within governance structures (Teece, Pisano and Shuen, 1997).

Forgetfulness refers to low policy salience, weak institutional attention, and the cumulative neglect of heritage assets over time (Mourão, 2020; Sánchez-Carreira, Reis Mourão and Blanco-Varela, 2023). In contexts where heritage has been marginalized, a DT's visibility effect is likely to be stronger because it reintroduces the asset into cognitive and institutional space. By contrast, where baseline visibility is already high, the marginal effect of additional digital representation is likely to be more limited. This boundary condition explains why DTs may produce stronger governance returns in low-density regions than in more institutionally dense settings.

For empirical development, the model can be operationalized through distinct indicators at each stage. Visibility may be captured through access rates, digital reach, interaction intensity, or exposure metrics; shared awareness through salience convergence, perceived relevance, or aligned stakeholder framing; engagement through participation frequency, responsiveness, or involvement intensity; coordination through joint planning, shared projects, and data exchange; and innovation culture through the recurrence of adaptive or collaborative governance routines (Teece, Pisano and Shuen, 1997; Shabani et al., 2022; Pletsch et al., 2026). This specification preserves conceptual clarity while remaining open to future empirical testing.

4.2 Theoretical Contributions

This study advances theory in three interconnected ways. First, it reframes DTs as governance infrastructures rather than purely technical documentation tools, extending institutional logics to explain how digital systems reshape attention allocation and coordination in fragmented settings (Thornton, Ocasio and Lounsbury, 2012). This perspective positions DTs as institutional bridging mechanisms that convert visibility into governable resources (Shabani et al., 2022).

Second, the sequential mechanism from visibility to innovation culture provides a structured explanation of how digital interventions become institutional change. By integrating dynamic capabilities theory, the model shows how awareness creates the cognitive conditions for engagement, how engagement lowers coordination costs, and how sustained coordination embeds adaptive routines within territorial governance systems (Teece, Pisano and Shuen, 1997; Warner and Wäger, 2019). This addresses a gap in both digital heritage and public innovation literatures, where the micro-processes of institutional activation remain underdeveloped.

Third, the economy of forgetfulness is positioned as a measurable boundary condition that amplifies the governance effects of digital visibility. In contexts of cumulative neglect, even modest digital interventions generate disproportionate salience because they operate against a low baseline of institutional attention (Mourão, 2020; Sánchez-Carreira, Reis Mourão and Blanco-Varela, 2023). This contribution integrates selective

neglect research with digital infrastructure theory, offering a novel explanation for why the same technical intervention may produce divergent governance outcomes across territories.

4.3 Practical Implications

The framework carries direct implications for heritage policy design in resource-constrained settings. Low-density territories should prioritize interoperable, modular digital architectures over monolithic flagship replicas, focusing on lightweight platforms that reduce transaction costs across fragmented municipalities (Audretsch and Kariv, 2025; Lopes et al., 2025). Three priorities emerge from the model: modular architecture enables scalable deployment through common data environments and sensor-to-decision pipelines supporting cross-municipal coordination without heavy upfront investment; routine building transforms DTs from one-off projects into recurring governance practices by embedding insights into regular coordination cycles (Warner and Wäger, 2019); capacity alignment ensures digital visibility translates to impact via foundational connectivity, staff competencies, institutional trust, and pre-existing cooperation - without which technical sophistication fails (Silva et al., 2024).

5. Conclusions

This study proposes a novel conceptual interpretation of DTs as governance infrastructures for heritage activation in LDRs, rather than as purely technical tools for documentation or monitoring. Its main contribution is to explain how digital visibility may be translated into shared awareness, stakeholder engagement, coordination, and, ultimately, a territorial culture of innovation under conditions of institutional fragmentation and selective neglect.

The study remains explicitly conceptual and comparative-illustrative in scope. Accordingly, its contribution is theoretical: it offers a relevant and operationally specifiable framework for understanding governance dynamics in marginalized heritage territories, but it does not provide empirical testing, causal verification, or statistical generalization.

A second contribution is the introduction of the economy of forgetfulness as a pertinent boundary condition that helps explain why the same digital intervention may generate different governance effects across places. This point strengthens the study's originality because it connects digital heritage, institutional theory, and territorial governance in a way that remains underdeveloped in the current literature.

The conclusions should therefore remain objective and proportionate to the design of the study. The framework suggests analytical plausibility, not empirical confirmation, and the illustrative cases support conceptual transferability rather than explanatory proof.

Future research should test the proposed model empirically across multiple low-density heritage contexts. In this respect, Hayes (2018) should be cited only as a methodological direction for future work, particularly for the development of a structural equation model or other moderated-mediation strategy capable of evaluating the sequential relationships proposed here, and not as support for the present study's conclusions.

Such research could specify visibility, awareness, engagement, coordination, and innovation culture as latent constructs, while examining forgetfulness as a moderator shaping the strength of the visibility–awareness relationship. This would allow the model to move from conceptual novelty to empirical validation without overstating what the current study demonstrates.

Additional work may also explore longitudinal and comparative designs, including non-UNESCO low-density territories, in order to assess scalability, contextual variation, and policy relevance beyond the cases discussed here

Ethics Declaration: Not Applicable.

AI Declaration: AI tools were used to support the orthographic and grammatical revision in academic English writing.

Consent for Publication: Not Applicable.

Availability of Data and Material: Not Applicable.

Competing Interests: The authors declare that they have no competing interests.

Funding: This work is funded by national funds through FCT - Fundação para a Ciência e a Tecnologia, I.P., under the Programme Contract UID/05105/2025. https://doi.org/10.54499/UID/05105/2025.

References

Audretsch, D. and Kariv, D. (2025) "Community embeddedness as a catalyst during crises: innovation among tech entrepreneurs in central and peripheral areas," European Journal Of Innovation Management, 28(10), pp. 5151–5180. Available at: https://doi.org/10.1108/EJIM-03-2025-0354.

Barney, J. (1991) "Firm Resources and Sustained Competitive Advantage," Journal of Management, 17(1), pp. 99–120. Available at: https://doi.org/10.1177/014920639101700108.

Bratton, B.H. (2019) Le Stack. Grenoble: UGA Éditions. Available at: https://doi.org/10.4000/books.ugaeditions.11872.

Chioni, C., Pezzica, C. and Favargiotti, S. (2024) "Territorial Digital Twins: A key for increasing the community resilience of fragile mountain inner territories?," Sustainable Development, 32(2), pp. 1548–1563. Available at: https://doi.org/10.1002/sd.2688.

Gagua, A. et al. (2025) "Responsible AI Governance in the Public Sector: Explaining Contextual Dynamics Through a Realist Synthesis Review," Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society, 8(1), pp. 990–1002. Available at: https://doi.org/10.1609/aies.v8i1.36606.

Graham, B., Ashworth, G. and Tunbridge, J. (2016) A Geography of Heritage. Routledge. Available at: https://doi.org/10.4324/9781315824895.

Hayes, A.F. (2018) "Partial, conditional, and moderated moderated mediation: Quantification, inference, and interpretation," Communication Monographs, 85(1), pp. 4–40. Available at: https://doi.org/10.1080/03637751.2017.1352100.

Ketokivi, M. and Mantere, S. (2021) "What warrants our claims? A methodological evaluation of argument structure," Journal of Operations Management, 67(6), pp. 755–776. Available at: https://doi.org/10.1002/joom.1137.

Langley, A. (1999) "Strategies for Theorizing from Process Data," Academy of Management Review, 24(4), pp. 691–710. Available at: https://doi.org/10.5465/amr.1999.2553248.

Lister, J., Nash, J. and Ledingham, U. (1951) "Constitution and Insulin Sensitivity in Diabetes Mellitus," BMJ, 1(4703), pp. 376–379. Available at: https://doi.org/10.1136/bmj.1.4703.376.

Lopes, J.M. et al. (2025) "Driving regional advancement: exploring the impact of science and technology parks in the outermost regions of Europe," European Journal of Innovation Management, 28(8), pp. 4225–4256. Available at: https://doi.org/10.1108/EJIM-03-2024-0278.

Mammone, V., Binetti, M.S. and Massarelli, C. (2026) "Digital Twin in Territorial Planning: Comparative Analysis for the Development of Adaptive Cities," Urban Science, 10(2). Available at: https://doi.org/10.3390/urbansci10020080.

Mourão, P.R. (2020) A Economia do Esquecimento: rasgando o Estreito de Magalhães. UMinho Editora. Available at: https://doi.org/10.21814/uminho.ed.12.

Münch, C., Benz, L.A. and Hartmann, E. (2022) "Exploring the circular economy paradigm: A natural resource-based view on supplier selection criteria," JOURNAL OF PURCHASING AND SUPPLY MANAGEMENT, 28(4). Available at: https://doi.org/10.1016/j.pursup.2022.100793.

Musiani, F. et al. (2016) The Turn to Infrastructure in Internet Governance. Edited by F. Musiani et al. New York: Palgrave Macmillan US. Available at: https://doi.org/10.1057/9781137483591.

OECD (2025a) Reinforcing Rural Resilience. OECD Publishing. Available at: https://doi.org/10.1787/7cd485e3-en.

OECD (2025b) Shrinking Smartly and Sustainably. OECD Publishing (OECD Rural Studies). Available at: https://doi.org/10.1787/f91693e3-en.

OECD (2025c) Shrinking smartly and sustainably in Portugal. Available at: https://doi.org/10.1787/666c29c4-en.

Pedraza-Rodríguez, J.A. et al. (2023) "Management skills and organizational culture as sources of innovation for firms in peripheral regions," Technological Forecasting and Social Change, 191. Available at: https://doi.org/10.1016/j.techfore.2023.122518.

Pletsch, A.L.B. et al. (2026) "Digital transformation: the role of generative AI in the evolution of knowledge management systems," Journal of Knowledge Management [Preprint]. Available at: https://doi.org/10.1108/JKM-09-2025-1398.

"Portaria 208/2017" (2017). Available at: https://files.diariodarepublica.pt/1s/2017/07/13400/0373103734.pdf (Accessed: April 14, 2026).

Qian, Y. et al. (2026) "How digital twin platforms empower the decarbonization of built environments: A case study of a vernacular dwelling," Building and Environment, 290, p. 114148. Available at: https://doi.org/10.1016/j.buildenv.2025.114148.

Sánchez-Carreira, M. del C., Reis Mourão, P.J. and Blanco-Varela, B. (2023) Regional Development and Forgotten Spaces. London: Routledge. Available at: https://doi.org/10.4324/9781003190592.

Shabani, A. et al. (2022) "3D simulation models for developing digital twins of heritage structures: challenges and strategies," Procedia Structural Integrity, 37, pp. 314–320. Available at: https://doi.org/10.1016/j.prostr.2022.01.090.

Sicilia, M. and Palazón, M. (2023) "Developing customer engagement through communication consistency and channel coordination," Spanish Journal of Marketing - ESIC, 27(2), pp. 241–260. Available at: https://doi.org/10.1108/SJME-02-2022-0022.

Silva, A. et al. (2024) "Cultural Indicators as a Tool for Assessing Sustainable Development in the Alto Douro Wine Region," pp. 363–374. Available at: https://doi.org/10.1007/978-981-99-9765-7_31.

Teece, D.J., Pisano, G. and Shuen, A. (1997) "Dynamic capabilities and strategic management," Strategic Management Journal, 18(7), pp. 509–533. Available at: https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z.

Thornton, P.H. and Ocasio, W. (2008) "Institutional Logics," The SAGE Handbook of Organizational Institutionalism. 1 Oliver's Yard, 55 City Road, London EC1Y 1SP United Kingdom : SAGE Publications Ltd, pp. 99–128. Available at: https://doi.org/10.4135/9781849200387.n4.

Thornton, P.H.., Ocasio, William. and Lounsbury, Michael. (2012) The institutional logics perspective : foundations, research, and theoretical elaboration. Oxford University Press.

UNESCO (2016) "UNESCO 2016."

Vale, M. et al. (2024) "Are peripheral regions in troubled waters for sustainability transitions? A systematic analysis of the literature," European Urban and Regional Studies, 31(2), pp. 116–131. Available at: https://doi.org/10.1177/09697764231194316.

Warner, K.S.R. and Wäger, M. (2019) "Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal," Long Range Planning, 52(3), pp. 326–349. Available at: https://doi.org/10.1016/j.lrp.2018.12.001.

Whetten, D.A. (1989) "What Constitutes a Theoretical Contribution?," Academy of Management Review, 14(4), pp. 490–495. Available at: https://doi.org/10.5465/amr.1989.4308371.

Female Leadership Ambitions in Germany: A Comparative Qualitative Career-stage Analysis

Elisa Weisman, Anmol Kaur and Rania Azougaghe
Hochschule Macromedia, University of Applied Sciences, Frankfurt am Main, Germany

e.weisman@macromedia.de
ankaur@stud.macromedia.de
razougaghe@stud.macromedia.de

Abstract: Despite more than a decade of policy intervention, the share of women in leadership positions in Germany has remained essentially unchanged at approximately 29%, well below the EU average of 35.2% (Statistische Bundesamt 2025). While structural barriers are extensively documented, less attention has been paid to how women themselves form, revise, and act upon their leadership ambitions across career stages. This study therefore asks: How do women in Germany form, revise, and act upon leadership ambitions across career stages, and under what conditions do they perceive leadership as worth pursuing? This paper presents a comparative qualitative study drawing on 31 interviews with Young Professionals (n=17) navigating whether to pursue leadership for the first time, and established leaders (n=14) navigating whether to advance further. Applying the Boundaryless Career Model (Sullivan and Arthur 2006a), Role Congruity Theory (Eagly and Karau 2002), Self-Determination Theory (R. M. Ryan and Deci 2000), and the Theory of Planned Behavior (Ajzen 1991), the analysis yields both deductive and four inductively emergent findings: a universal concept-context split in which ambition is conditional rather than absent; a systematic career-stage shift in the central question women ask; sustainability as a primary evaluation criterion; and the tension between seeking influence and avoiding depletion. Together, these findings suggest that many participants evaluated not leadership as such, but specific organizational models of leadership that they perceived as potentially depleting. Implications for talent management, employer branding, and leadership pipeline design are discussed.

Keywords: Female leadership ambitions, Qualitative research, Germany, Career-stage comparison, Sustainability, Influence without depletion

1. Introduction

Germany presents a paradox in the landscape of gender and leadership. Despite sustained political commitment including mandatory gender quotas for supervisory boards since 2016 and a well-developed legal framework for equal treatment in employment, the proportion of women in leadership has remained static for over a decade at 29.1%, placing Germany at rank 22 among 27 EU member states (Statistische Bundesamt 2025). At the executive board level, the figure is approximately 19%, a number that has stagnated and, in some sectors, declined (DIW Berlin 2025). The policies are in place. The numbers have not moved.

What makes this particularly difficult to explain is the growing disconnect between ambition and confidence. A 2025 survey of over 1,000 professionals conducted by the German gender equality initiative Chef:innensache found that while 24% of women now aspire to leadership, up five percentage points, only 26% believe they will reach it. This represents a decline of 6.8 points and the lowest level since 2022 (Karrierezuversichtsumfrage 2025 2025). In other words, ambition is rising while confidence is collapsing. Structural explanations such as the Glass Ceiling (M. K. Ryan and Haslam 2005), the Broken Rung (Krivkovich et al. 2025), the Gender Pay Gap, and network disadvantage (Lalanne and Seabright 2022) are important, but they do not by themselves fully illuminate how women interpret, revise, and act upon leadership ambitions across career stages. Women graduate from higher education with equal or greater leadership ambition than men, yet that ambition declines consistently during the early career years (Beaupre 2022). Understanding why requires examining how women themselves form, revise, and sometimes abandon their ambitions and finally what changes across career stages.

This paper addresses that gap through a comparative qualitative study conducted in Germany in 2026, examining Young Professionals navigating whether to seek leadership for the first time and established leaders deciding whether to advance further. Although existing theories explain important aspects of leadership ambition, less attention has been paid to how individuals evaluate whether leadership itself is sustainable over time. The aim of this study is to examine how women in Germany form, revise, and act upon leadership ambitions across career stages. The guiding research question is: How do young professionals and established female leaders evaluate leadership opportunities, and under what conditions do they perceive leadership as sustainable, legitimate, and worth pursuing?

Based on the qualitative findings, the paper develops a twofold argument: first, the question women ask appears to shift across career stages from whether they can and want to lead to whether they still want to and at what cost; second, many participants evaluated not leadership as a concept, but specific models of leadership they experienced as potentially depleting. The paper is organized as follows. Section 2 presents the theoretical framework and literature review. Section 3 describes the methodology. Section 4 presents the findings. Section 5 discusses implications for theory and practice.

2. Theoretical Framework and Literature Review

This study integrates four theoretical frameworks, each addressing a distinct dimension of female leadership ambition, presented alongside the literature they help to organize. Together they reveal the research gap to which this study responds.

2.1 Self-Determination Theory and the Conditions for Ambition

Self-Determination Theory (R. M. Ryan and Deci 2000), proposes that intrinsic motivation depends on fulfilling three basic psychological needs: autonomy, or the experience of volition and self-determination; competence, or the experience of effectiveness and mastery; and relatedness, or the experience of meaningful connection with others. When these needs are frustrated — through micromanagement, lack of recognition, or social exclusion — motivation and ambition diminish. For this study, SDT explains why capable women may not pursue leadership: if a role offers insufficient autonomy, limited opportunities for meaningful competence experience, or a hostile social environment, the motivation to seek it does not activate regardless of external incentives. This is consistent with evidence that women who anticipate discrimination modify their aspirations pre-emptively, before encountering the barrier itself (Azmat, Cuñat, and Henry 2025), and that early career experiences of low autonomy and poor organizational fit systematically erode workplace ambition in ways entirely consistent with SDT's account of need frustration (Beaupre 2022).

2.2 Theory of Planned Behavior and Perceived Control

The Theory of Planned Behavior (TPB) (Ajzen 1991) links behavioral intention to three factors: attitudes toward the behavior, subjective norms, and perceived behavioral control. Applied to leadership ambition, it means that a woman's intention to pursue a leadership role is shaped by her attitude toward leadership, her perception of social expectations from family, colleagues, and the broader environment, and her belief in her own ability to succeed in a specific context. A woman may hold a genuinely positive attitude toward leadership in principle while simultaneously facing normative pressure against it or doubting her ability to succeed in a particular organization. These distinctions are central to understanding the gap between stated ambition and actual career decisions. The Gender-Equality Paradox adds important context: in high-equality societies, women are more likely to prioritize meaningful work over hierarchical advancement, which TPB interprets as a rational reweighting of perceived costs and benefits rather than a deficit of ambition (Stoet and Geary 2018). Germany, with high formal equality alongside persistent informal gender norms, provides a relevant context for examining this phenomenon.

2.3 The Boundaryless Career Model and the Redefinition of Success

The Boundaryless Career Model (Sullivan and Arthur 2006b) reconceptualizes the career as driven by personal values and meaning rather than hierarchical progression within a single organization. Where traditional models equated success with vertical advancement, the Boundaryless Career Model recognizes that contemporary workers, particularly younger generations, increasingly define career success in terms of flexibility, learning, work-life integration, and personal fulfillment. This framework is essential for interpreting women who express genuine ambition but resist hierarchical structures not because they are lacking drive, but because they apply a different definition of career success. When a participant defines success as really feeling that she has created and changed something rather than as reaching a particular organizational level, this is not an absence of ambition. It is a different and entirely legitimate form of it. This study extends the model by arguing that many women are not simply redefining the destination of their careers but actively evaluating whether the dominant leadership model is compatible with the kind of professional life they wish to sustain over time, which points to a dimension that is less explicitly developed in the framework.

2.4 Role Congruity Theory, Structural Prejudice, and the Research gap

Role Congruity Theory (Eagly and Karau 2002) addresses the structural prejudice that women face in leadership contexts. Leadership roles are culturally associated with agentic characteristics such as assertiveness, decisiveness, dominance, while women are socially expected to exhibit communal

characteristics including warmth, cooperativeness, and nurturance. This incongruence creates a double bind: behavior conforming to leadership expectations violates gender norms and is judged as inappropriately hard, while communal behavior is judged as insufficiently decisive for leadership. Women who internalize this double bind may come to doubt whether they fit the leadership role. This is driven not from any lack of capability, but from a rational reading of an environment that evaluates them against contradictory standards.

The empirical literature maps directly onto this mechanism. The Glass Cliff describes the tendency for women to be appointed to leadership precisely in crisis conditions, exposing them to higher risk of failure (Reinwald et al. 2023; M. K. Ryan and Haslam 2005). Network disadvantage compounds the picture: the professional networks of female executives are systematically less effective than those of male counterparts in generating advancement (Lalanne and Seabright 2022), while active sponsorship, rather than mentoring alone, remains the most consistently effective intervention for women's advancement yet is unevenly distributed (Gröschl et al. 2025). A comprehensive meta-analysis confirmed that structural and contextual factors systematically advantage men in the processes through which leaders are identified and selected (Badura et al. 2018). Despite the richness of this body of work, a critical gap remains. What is missing is a qualitative understanding of how women at different career stages form and revise their ambitions, and in particular how they evaluate whether leadership itself is worth pursuing. The McKinsey Women in the Workplace reports (Krivkovich et al. 2025) consistently document attrition from the pipeline at multiple points, but do not illuminate the subjective mechanisms behind those losses. The present study addresses this gap by comparing both groups directly within a single analytical framework. It includes those who have not yet entered leadership and those who are already there in direct comparison.

3. Methodology

The study adopts an exploratory qualitative research design appropriate for questions of subjective meaning-making, lived experience, and individual decision-making processes (Flick 2022). A comparative design examining two distinct groups within a single analytical framework enables identification of both group-specific and cross-group patterns. Data were collected through 31 interviews conducted in Germany between April and May 2026: 29 audio-recorded semi-structured interviews and two written asynchronous interviews with established leaders who could not attend synchronous sessions due to scheduling constraints common in senior professional populations (Meho 2006). All audio interviews were conducted in German, recorded with consent, and fully transcribed. The interview guide covered six thematic blocks drawn deductively from the four frameworks and reviewed iteratively throughout the fieldwork phase to accommodate emergent themes (Mayring 2015).

The sample comprises 17 Young Professionals aged 26 to 35 (INT1-17) without formal personnel responsibility (Beaupre 2022), and 14 established leaders aged 37 to 47 (INT20-32) with direct personnel responsibility, drawn from sectors including technology, finance, human resources, aviation, and the public sector. Five established leaders held migration biographies, a dimension that emerged as analytically significant. Sampling followed a purposive logic targeting heterogeneity across sectors, organizational types, career trajectories, and cultural backgrounds in order to maximize the range of perspectives captured (Patton 2015). Recruiting senior professionals is consistently more resource-intensive due to time constraints and organizational gatekeeping (Saunders and Townsend 2016), which accounts for the slightly smaller established leader group relative to the Young Professional group.

Analysis followed Mayring's (2015) qualitative content analysis combining deductive categories derived from the four frameworks with inductive categories formed from the material itself, intentionally producing two layers of findings: deductive findings that test and extend existing theoretical explanations, and inductive findings that represent genuine empirical extensions of the framework. MaxQDA supported systematic code management, cross-case comparison, and frequency analysis. Thematic saturation was assessed independently for each group and approached within the available sample (Fusch and Ness 2015). Two researchers independently coded a subset of interviews and resolved discrepancies through discussion to strengthen coding consistency.

4. Findings

The analysis produced deductive findings grounded in the theoretical frameworks and four inductive findings that extend beyond them. While presented separately, the four inductive themes reflect a broader evaluation process: rather than assessing leadership in terms of status or authority, participants consistently assessed

whether leadership could be integrated into a sustainable professional and personal life. Quotations are translated from German unless otherwise noted.

4.1 The Concept-Context Split: Ambition Is Conditional, Not Absent

Across the 31 interviews, no participant rejected leadership in principle. However, all participants attached conditions to their willingness to pursue or continue pursuing it. Positive evaluation of leadership was coded in 88% of interviews. This finding complicates the persistent narrative that women lack leadership ambition and shifts the analytical question from why women do not want to lead to what conditions must be present before they will.

INT12 stated without hesitation: "No, I want to become a leader" while she would decline under the wrong conditions. INT3 turned down a promotion because the financial terms were irrational: "Why should I do even more than I already do if it doesn't pay off financially?" INT16 declined not from lack of capability but from self-knowledge: "I'm a harmonious person and rather reserved. That's not quite who a leader is supposed to be." INT29 described the same gap from the established leader perspective: "I see myself as a bridge builder. When those three things align, people, organization, and market, that's what success looks like to me."

Financial cost-benefit calculation was one of the most consistent codes across the dataset, appearing in 14 of 17 Young Professional interviews and 9 of 14 established leader interviews. Three patterns emerged: offers declined because promotion would mean performing the same work for less pay due to qualification differentials; structural pay gaps rendered ineffective by organizational pressure, as INT4 experienced with the Wage Transparency Act; and the net income logic INT1 described "You're essentially working for the state." Financial calculation is frequently a rational response to documented structural inequality. Interpreting such decisions primarily as motivational failure therefore risks overlooking the structural and economic conditions shaping them.

4.2 The Career-Stage Shift in the Central Question

For Young Professionals, the central question is whether they can and want to lead under what conditions. For established leaders, it becomes whether they still want to go further and at what cost. This shift is a central finding of the comparative analysis, and it is not a shift from ambition to its absence. Ambition was present in both groups, although it was expressed and evaluated differently. What changes is the sophistication of the evaluation and the source from which conditions are drawn.

Conditioning of leadership readiness is equally strong in both groups; what differs is its origin. Young Professionals set conditions based on anticipation and observed experience; established leaders based on what their personal experience was. INT22 captured this directly: "Earlier, more responsibility was automatically positive for me. Today I think much more carefully about what that means." INT25, a female leader with several years of experience, was equally precise: "I would rather be genuinely good at what I do than mediocre in a role that doesn't fit me" Three subgroups emerged within the Young Professional group: those with clear ambition and a defined timeline; those with conditional openness who had often already declined a concrete offer; and those with a clear current refusal rooted in distinct personal reasoning: personality alignment, health concerns, or a deliberate alternative path. Not all established leaders moved away from ambition: the public sector team lead INT29 held a concrete plan toward department head or a ministerial position, demonstrating that career stage determines the nature of the question being asked, not its direction.

4.3 Sustainability as an Evaluation Criterion

Participants evaluated leadership not primarily through the lens of status, title, or advancement, but through what the data reveal as a sustainability calculus: can this role be sustained over time without depleting what matters to me? This finding is related to work-life balance but meaningfully broader. It encompasses energy, recovery, identity, and long-term viability, and it applies equally to participants with and without children.

INT27 offered the most complete articulation: "Career doesn't always mean going higher. Sometimes it's a success to be satisfied with what you have." The senior transportation manager INT28 framed sustainability as a non-negotiable condition: "A leadership role would have to offer a great deal of flexibility, freedom, and room to shape things, otherwise it simply doesn't fit into my life." INT21 was the most direct: "I see no reason to voluntarily add more pressure to my life right now." INT29 described work-life blending as intentional management of focus rather than separation: "If you try to be at two parties at once, you just end up overwhelmed." What distinguishes sustainability from simple work-life balance is that participants are not

describing a trade-off between work and home. They are describing an internal standard applied before accepting any role. In these accounts, leadership roles that did not meet this standard were not necessarily rejected out of fear or lack of ambition, but because participants judged them incompatible with the life they intended to sustain.

4.4 Emergent Rather Than Planned Leadership Pathways

For a significant portion of the established leader group, leadership was not sought but found. Often through organizational need, accumulated expertise, the departure of a predecessor, or simply because others were relying on them and a formal title eventually followed. INT24 became a UX team lead when her predecessor went on maternity leave and she was the person who understood the task. INT27 became head of accounting because she was the institutional memory of her department. INT23 described her entire trajectory as: "That's just how it happened." INT30 was the most direct: "I never had the intention to take on leadership, but I keep sliding back into it. That's just my nature."

This pattern complicates the Boundaryless Career Model's assumption of intentional self-direction: what these participants describe is a form of career emergence shaped by opportunity and the recognition of others rather than personal strategy. It has a direct practical implication: formal promotion processes that rely heavily on explicit self-nomination may disadvantage emergent leaders. Organizations that rely primarily on candidates putting themselves forward may risk overlooking women whose leadership potential becomes visible through practice, recognition, and organizational need rather than explicit career planning.

4.5 Influence Without Depletion

Participants across both groups expressed a genuine desire for impact and influence while being critical of the dominant model through which that influence is typically exercised: one demanding constant visibility, political navigation, performative availability, and personal sacrifice. INT9 articulated this most directly: "It's not that I want to be the boss. What draws me is having genuine influence over how people work and feel at work." INT28 reflected: "I become excited very easily and tend to go all in. Perhaps that was not always healthy or sustainable," adding that women in leadership are "often placed in symbolic positions" with an expectation to "remain quiet and not complain."

INT17 resolved this tension through the works council, choosing organizational influence without the depletion she had observed in others. INT31 described her ideal future role not as one with more authority but as one with more colleagues, more exchange, and more depth. This finding reframes the central question of the study. In this sample, participants were not simply rejecting leadership. Rather, many were critical of specific organizational models of leadership that they perceived as structurally depleting. They associated this model with constant visibility, the absorption of personal identity, and the extraction emotional resources that are not replenished. The women in this study want influence. Many want to lead people. What many appeared to question was a version of leadership that they associated with many German organizational contexts: one marked by constant visibility, political navigation, and high emotional demands.

5. Discussion and Conclusions

The findings provide a qualitative explanation of how the ambition gap may persist despite the presence of leadership ambition among participants. Rather than indicating a simple deficit of ambition, the interviews suggest that leadership ambition is filtered through evaluations of financial fairness, sustainability, legitimacy, and anticipated depletion. The following discussion separates empirical findings, theoretical interpretation, and practical implications.

5.1 Empirical Contribution

The concept-context split, observed across all 31 interviews, provides qualitative evidence that the narrative of lacking leadership ambition is too simplistic. Every participant evaluated leadership positively as an idea; what varied was the evaluation of context, including the financial terms, the organizational culture, and the model of leadership on offer. This shifts the policy question from how to motivate women toward how to create conditions under which existing ambition translates into action. The financial cost-benefit finding makes this concrete: when advancement is structurally not attractive for women, declining it is the economically rational choice. Addressing gendered pay inequalities may therefore be an important condition for translating leadership ambition into action, rather than only an equity concern.

5.2 Theoretical Contribution

The theoretical contribution lies in showing that, while the findings support existing frameworks, they also reveal dimensions those frameworks do not fully capture. The sustainability finding broadens the Boundaryless Career Model (Sullivan and Arthur 2006b) beyond flexibility and meaning to include long-term personal viability as a career evaluation criterion. The influence-without-depletion finding reveals the gap between leadership as position and leadership as practice, a distinction not fully captured by the frameworks used in this study. The legitimacy-through-competence dimension embedded in the data connects Role Congruity Theory (Eagly and Karau 2002) to the behavioral disadvantage in self-promotion documented by Badura et al.(2018): the double bind is not only evaluative but behavioral, producing a systematic underinvestment in self-marketing that compounds structural disadvantage. The emergent pathway finding challenges the Boundaryless Career Model's assumption of intentional career navigation and carries a direct practical implication for promotion design. The study proposes sustainability as an important additional dimension in understanding female leadership ambition. Rather than asking whether women aspire to leadership, a more productive question is whether available opportunities are perceived as sustainable, legitimate, and worth pursuing.

5.3 Practical Contribution

The findings suggest that the Broken Rung (Krivkovich et al. 2025) may operate not only through formal processes, but also through anticipatory adjustment. Women adjust ambitions based on what they observe before they are ever passed over (Azmat et al. 2025). The absence of visible female role models may therefore be understood not only as a representation problem, but also as a factor shaping ambition formation (Beaupre 2022). For established leaders, the emotional exhaustion produced by leadership experience is an organizational design problem, not a personal failing. Leadership structures perceived as consistently depleting may make advancement less attractive and contribute to erosion. Organizations should ensure advancement is financially rational for women by closing pay gaps and addressing qualification-based differentials. Creating genuine visibility through active sponsorship, rather than mentoring alone, appears to be a particularly important intervention (Gröschl et al. 2025). They should redesign promotion processes to surface emergent leaders who do not self-nominate and invest in reducing the performative and political costs of leadership roles. For employer branding specifically, aspirational messaging that oversells leadership may be evaluated critically against lived experience. When the gap between the marketed image and the actual condition of the role is too large, it damages organizational credibility rather than building pipeline.

5.4 Limitations and Future Research

Several limitations of this study should be noted. The sample is drawn exclusively from Germany, and the findings are shaped by Germany's specific combination of formal gender equality, persistent informal gender norms, tax structure, and parental leave system. The degree to which findings generalize to other national contexts is an empirical question that future research should address. The qualitative design, while appropriate for the research questions, does not support statistical generalization. The unexpected prominence of migration biographies in the established leader group raises intersectional questions that this study is not designed to answer with the depth they deserve, and future research should examine how migration background, cultural heritage, and leadership ambition interact in the German organizational context. In addition, because this study is based on a purposive qualitative sample, the findings should be understood as analytically transferable rather than statistically generalizable.

5.5 Conclusion

In conclusion, the persistent gap between female leadership ambition and advancement is best understood as a sustainability challenge, not an ambition deficit. The women in this study did not simply reject leadership. They evaluated whether available roles were financially fair, personally sustainable, culturally legitimate, and compatible with the influence they wished to exercise. The findings suggest that closing the gap may depend less on changing women’s ambitions and more on creating forms of leadership that ambitious women perceive as financially fair, personally sustainable, and worth pursuing.

Ethics Declaration: All participants provided voluntary informed consent and were assured of anonymity. Interview data were anonymized prior to analysis. No sensitive personal data beyond professional context were collected. Ethical guidelines of Hochschule Macromedia for empirical research involving human participants were followed throughout.

AI Declaration: This paper was developed with the assistance of an AI language model (Claude, Anthropic), which was used for language editing, condensation of sections, and stylistic refinement. All analytical interpretations, theoretical framings, findings, and final content decisions were reviewed, validated, and approved by the research team. The authors take full responsibility for the content of this paper.

References

Ajzen, I. (1991) 'The theory of planned behavior', Organizational Behavior and Human Decision Processes, Vol. 50, No. 2, pp. 179-211. doi:10.1016/0749-5978(91)90020-T

Azmat, G., Cunat, V. and Henry, E. (2025) 'Gender promotion gaps and career aspirations', LSE Research Online Documents on Economics. Available at: https://ideas.repec.org/p/ehl/lserod/120741.html

Badura, K.L., Grijalva, E., Newman, D.A., Yan, T.T. and Jeon, G. (2018) 'Gender and leadership emergence: A meta-analysis and explanatory model', Personnel Psychology, Vol. 71, No. 3, pp. 335-367. doi:10.1111/peps.12266

Beaupre, J.G. (2022) 'To lead or not to lead: Exploring how young women's early career experiences impact their leadership ambition', Gender in Management: An International Journal, Vol. 37, No. 8, pp. 1064-1079. doi:10.1108/GM-11-2021-0344

Chef:innensache (2025) Karrierezuversichtsumfrage 2025: Karriere im Spannungsfeld [online] https://chefinnensache.de/karriere-im-spannungsfeld/

Deci, E.L. and Ryan, R.M. (2000) 'Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being', American Psychologist, Vol. 55, No. 1, pp. 68-78.

Denzin, N.K. and Lincoln, Y.S. (2018) The SAGE Handbook of Qualitative Research, 5th ed., SAGE, Thousand Oaks.

DIW Berlin (2025) Immer mehr Vorstandinnen und Aufsichtsratinnen, aber nach wie vor ein weiter Weg bis zur Geschlechterparitat, DIW Wochenbericht, 2025(03). doi:10.18723/diw_wb:2025-3-2

Eagly, A.H. and Karau, S.J. (2002) 'Role congruity theory of prejudice toward female leaders', Psychological Review, Vol. 109, No. 3, pp. 573-598. doi:10.1037/0033-295X.109.3.573

Flick, U. (2022) The SAGE Handbook of Qualitative Research Design, SAGE, London. doi:10.4135/9781529770278

Fusch, P.I. and Ness, L.R. (2015) 'Are we there yet? Data saturation in qualitative research', The Qualitative Report, Vol. 20, No. 9, pp. 1408-1416. doi:10.46743/2160-3715/2015.2281

Groschl, S., Gabaldon, P., Hahn, T. and Kelan, E.K. (2025) 'The emergence and effects of sponsors for women leaders', Gender, Work and Organization, Vol. 32, No. 5, pp. 1786-1796. doi:10.1111/gwao.13217

Herlitz, A., Honig, I., Hedebrant, K. and Asperholm, M. (2025) 'A systematic review and new analyses of the gender-equality paradox', Perspectives on Psychological Science, Vol. 20, No. 3, pp. 503-539.

Krivkovich, A., Goldstein, D. and McConnell, M. (2025) Women in the Workplace 2025, McKinsey and Company [online] https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/women-in-the-workplace

Lalanne, M. and Seabright, P. (2022) 'The old boy network: Are the professional networks of female executives less effective than men's for advancing their careers?', Journal of Institutional Economics, Vol. 18, No. 5, pp. 725-744. doi:10.1017/S1744137421000953

Mayring, P. (2015) Qualitative Inhaltsanalyse: Grundlagen und Techniken, 12th ed., Beltz, Weinheim.

Meho, L.I. (2006) 'E-mail interviewing in qualitative research: A methodological discussion', Journal of the American Society for Information Science and Technology, Vol. 57, No. 10, pp. 1284-1295. doi:10.1002/asi.20416

Patton, M.Q. (2015) Qualitative Research and Evaluation Methods, 4th ed., SAGE, Thousand Oaks.

Reinwald, M., Zaia, J. and Kunze, F. (2023) 'Shine bright like a diamond: When signaling creates glass cliffs for female executives', Journal of Management, Vol. 49, No. 3, pp. 1005-1036. doi:10.1177/01492063211067518

Ryan, M.K. and Haslam, S.A. (2005) 'The Glass Cliff: Evidence that women are over-represented in precarious leadership positions', British Journal of Management, Vol. 16, No. 2, pp. 81-90. doi:10.1111/j.1467-8551.2005.00433.x

Saunders, M.N.K. and Townsend, K. (2016) 'Reporting and justifying the number of interview participants in organization and workplace research', British Journal of Management, Vol. 27, No. 4, pp. 836-852. doi:10.1111/1467-8551.12182

Statistisches Bundesamt (2025) Deutschland unter EU-Durchschnitt: Weniger als jede dritte Fuhrungskraft ist weiblich [online] https://www.destatis.de/DE/Presse/Pressemitteilungen/2025/11/PD25_393_13.html

Stoet, G. and Geary, D.C. (2018) 'The gender-equality paradox in science, technology, engineering, and mathematics education', Psychological Science, Vol. 29, No. 4, pp. 581-593. doi:10.1177/0956797617741719

Sullivan, S.E. and Arthur, M.B. (2006) 'The evolution of the boundaryless career concept: Examining physical and psychological mobility', Journal of Vocational Behavior, Vol. 69, No. 1, pp. 19-29. doi:10.1016/j.jvb.2005.09.001

Leaders use it First: How Leadership Role Modeling Shapes the Sources and Grounding of AI Self-efficacy in Knowledge-intensive Roles in Morocco

Amine Zenjari, Oumnia Sidqui and Amal Zaki
Groupe ISCAE, Casablanca, Morocco

azenjari@groupeiscae.ma
osidqui_doct27@groupeiscae.ma
azaki_doct27@groupeiscae.ma

Abstract: Artificial intelligence is reshaping knowledge-intensive work, yet organizations repeatedly confront a gap between technical access to AI tools and workers' confidence in using them. This exploratory qualitative study asks how leadership role modeling shapes the sources and the grounding of AI self-efficacy among knowledge workers, and how that self-efficacy relates to job performance. Drawing on eleven semi-directive interviews with knowledge workers in consulting, finance, technology, academia and medicine, coded in two verified cycles (446 references, 32 nodes), we bring the Technology Acceptance Model (Davis, 1989) into dialogue with Bandura's (1997) Social Cognitive Theory. Four patterns emerge. Formal training was rare and, where mandatory, experienced as box-ticking; self-efficacy was built through self-directed enactive mastery. Visible AI use by managers and senior professionals operated as a signal of social legitimacy, distinct from managerial sponsorship, which on its own left practice unchanged; where senior use was absent or discreet, use contracted to a narrow perimeter of low-stakes tasks. Peers, not leaders, were the main channel of vicarious know-how. Finally, the grounding of self-efficacy, in a competence the worker retains or in the tool's availability, tracked the framing managers gave to AI and governed the durability and calibration of confidence rather than the size of the reported performance gain. We revise the mechanism chain accordingly and offer it as propositions for quantitative testing; the contribution is to reposition leadership as a cognitive, not merely behavioral, enabler of AI adoption in an under-studied emerging-economy setting.

Keywords: Leadership role modeling, AI self-efficacy, Sources of self-efficacy, Social legitimacy of use, Mastery appraisal, Morocco

1. Introduction

Generative AI has compressed into a few years a transformation of knowledge work that earlier office technologies took decades to accomplish. Field studies now document sizeable gains in productivity and quality among professionals who delegate drafting, synthesis and exploratory reasoning to large language models (Brynjolfsson et al, 2025; Dell'Acqua et al, 2023; Noy and Zhang, 2023). One result is especially telling: Noy and Zhang (2023) found that exposure to generative AI raised not only output but participants' self-efficacy, a sign that what is shifting is capability belief and not merely performance. For organizations, accordingly, the strategic question has moved from whether to adopt AI to a more puzzling one: why adoption stalls even when the technology is free, capable and demonstrably useful.

The conventional response is to invest in access and training, yet provisioning licences and running sessions does not reliably yield confident, habitual use. The decisive construct is not whether a worker understands how an AI tool operates but whether they believe they can use it effectively for their own tasks: what Bandura (1997) called self-efficacy, and what information-systems research later operationalized as computer, and now AI, self-efficacy (Compeau and Higgins, 1995; Marakas et al, 1998). Even where AI integration is found to raise that belief, as in a recent survey of 441 employees in the United Arab Emirates (Shishakly, Khattak and Abukhait, 2026), the instruments capture confidence in working with AI rather than anything about the capability the worker retains, and leadership enters, if at all, as a contextual condition rather than a mechanism.

Two literatures speak to this gap but rarely converse. The Technology Acceptance Model (TAM; Davis, 1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT; Venkatesh et al, 2003) explain adoption through cognitive perceptions, chiefly perceived usefulness and ease of use, yet treat capability beliefs thinly, as antecedents of intention. Social Cognitive Theory (Bandura, 1997) specifies how self-efficacy is built, through enactive mastery, vicarious experience, verbal persuasion and physiological states, but neither tradition has theorized, for the AI context, the social origin of capability belief inside organizations. Where leadership appears in adoption research it is usually framed as distal top-management support, while the proximal, daily mechanism, whether a worker sees their manager open an AI tool, reason with it and act on its output, has attracted little attention, despite Bandura's (1997) claim that similar, credible and proximate models are the most potent source of vicarious efficacy information.

We address this gap through an exploratory study of eleven knowledge workers across five domains, recruited in Morocco. Morocco is theoretically informative: as an emerging economy of relatively high power distance (Hofstede, 2001), leader behavior carries pronounced symbolic weight, which sharpens the visibility of the modeling mechanism. The paper repositions leadership from a distal behavioral lever to a proximal cognitive enabler of capability beliefs; it specifies the grounding of AI self-efficacy, in a retained competence or in the tool, as socially conditioned and as the property that governs the belief's durability; it delineates a boundary of TAM, perceived usefulness being distinct from and insufficient for self-efficacy; and it contributes evidence from an emerging economy largely absent from the literature. With eleven purposive interviews and retrospective self-reports, we make no causal or generalizable claims (Baron and Kenny, 1986); the output is a mechanism model expressed as testable propositions.

2. Theoretical Background and Propositions

Knowledge work centers on non-routine cognitive tasks, precisely the domain where generative AI is at once most disruptive and most ambiguous. Unlike deterministic software, an AI assistant requires the user to develop a tacit, probabilistic sense of where it can be trusted and how to steer it: a craft of prompting, verification and integration learned through use rather than instruction, in which errors can be confident and plausible (Dell'Acqua et al, 2023). Confidence in this craft, rather than familiarity with an interface, governs sustained adoption.

That reframing exposes a tension between two logics of adoption. TAM (Davis, 1989) and UTAUT (Venkatesh et al, 2003) predict intention well but say little about how the enactment that follows reshapes the user, or about capability belief as a distinct, cultivable construct. Social Cognitive Theory supplies the complement, locating the engine of behavior in self-efficacy and ranking its sources, with enactive mastery and vicarious experience the most potent (Bandura, 1997). A further tension separates perception from capability: perceived usefulness is a judgment about the tool's value, whereas self-efficacy is a judgment about the self's capability, increasingly treated as a distinct construct (Wang and Chuang, 2024). A worker may rate AI highly useful while feeling incapable of extracting that usefulness, and it is in that gap that adoption stalls. Beneath both lies the tension between the individual and the social: though the efficacy-to-performance relationship is robust across domains (Stajkovic and Luthans, 1998; Judge et al, 2007), the most potent non-enactive source of self-efficacy, vicarious experience, is irreducibly social, so the organizational distribution of observable models becomes a structural determinant of who develops capability belief. Taken together, these tensions yield our first proposition.

> ***Proposition 1:*** *Formal AI training experienced as compliance-driven, mandatory, generic and decoupled from observed use does not meaningfully increase workers' AI task self-efficacy, which is built primarily through self-directed enactive mastery.*

If training is not the lever, leaders move to the centre of the account. Much competence is acquired by observing models perceived as credible, similar and high in status (Bandura, 1997), and within organizations leaders are uniquely positioned as such models: visible, status-laden, and read as signaling what the organization values, as distinct from what its policies state. When a manager visibly uses AI, they transmit two things at once: procedural information about how the tool is used, and a symbolic signal that such use is legitimate and rewarded. This dual transmission is the heart of leadership role modeling. It is adjacent to, but distinct from, the leader-expectancy mechanism of the Pygmalion tradition (Eden, 1992): there, leaders raise performance by communicating expectations; here, they raise capability belief by enacting a behavior that followers can observe, imitate and feel sanctioned to attempt.

Three leadership streams are each individually insufficient here: role-modeling research rooted in social learning (Bandura, 1977) has concentrated on ethical conduct rather than on task-specific capability belief; sensegiving (Gioia and Chittipeddi, 1991) illuminates the legitimizing half of our mechanism but has rarely been connected to self-efficacy; and e-leadership scholarship (Avolio, Kahai and Dodge, 2000) has treated technology as the medium of leadership rather than its object. The leader is, in our account, at once a behavioral model, a sensegiver and a digital exemplar.

The mechanism is sharpened in high power-distance settings (Hofstede, 2001), where the symbolic content of what a leader does, and conspicuously does not do, carries amplified weight, so that the absence of modeling may read as tacit non-endorsement. This also reframes perceived usefulness: a favorable usefulness judgment motivates engagement, which produces mastery, which builds efficacy; but under uncertainty, a worker who believes AI useful may still not initiate sustained engagement absent a credible signal that doing so is

appropriate. The chain is, in other words, conditional on a legitimating signal, which leaders are best placed to supply.

> ***Proposition 2:*** *Visible AI use by leaders increases workers' AI task self-efficacy through two coupled pathways, symbolic legitimization and vicarious learning, which may be carried by different sources; managerial sponsorship without visible use does not, and the absence or discretion of leader use contracts engagement to a narrow perimeter of low-stakes tasks.*

> ***Proposition 3:*** *Perceived usefulness increases AI self-efficacy only indirectly, through engagement and mastery, and this indirect chain initiates only in the presence of a legitimating signal, of which leadership role modeling is the most efficient but not the only source.*

The efficacy-to-performance link is not mechanical, and this is where the grounding of self-efficacy enters. Enactive mastery is the most potent source of efficacy because success supplies information about one's own capability (Bandura, 1997); under assisted work, the question is to whom that information accrues. Two workers may produce identically strong AI-assisted outputs yet ground the confidence that follows differently: one in a competence she retains, the prompting, judgement and verification she exercised; the other in the tool's availability. Our review named these groundings durable and tool-contingent and argued that they should diverge when the tool is withdrawn (Sidqui and Zenjari, 2026), the divergence on which the ironies of automation turn (Bainbridge, 1983); that the two beliefs are separable is visible in instrument work, where the one item about performing without the tool loads on general rather than AI self-efficacy (Prather et al, 2026). The observable trace of grounding is the appraisal a worker gives to her assisted successes, what our coding manual calls mastery appraisal, and it is not fixed disposition: leaders who model AI as a craft may lead followers to ground their confidence in the craft, whereas leaders who present it as a convenience that delivers may lead them to ground it in the tool. The chain is finally bound by context: where the cost of AI error is high, as with clinical liability, threat perceptions dominate and even available models may be discounted.

> ***Proposition 4:*** *The framing leaders give to AI use, as a craft to be verified or as a convenience that delivers, shifts the grounding of workers' AI self-efficacy toward a competence they retain (durable) or toward the tool's availability (tool-contingent).*

> ***Proposition 5:*** *The grounding of AI self-efficacy conditions its durability and calibration: durably grounded self-efficacy survives the tool's withdrawal and stays bounded by verifiable tasks, whereas tool-contingent self-efficacy anticipates degradation without the tool and extends beyond what the worker can verify.*

> ***Proposition 6:*** *Sectoral context and organizational support moderate the strength of the modeling chain: high task-level threat (liability, hallucination risk) and weak institutional signaling attenuate it, while supportive, low-threat contexts strengthen it.*

3. Methodology

We adopt an exploratory, interpretive qualitative design, on the reasoning that where the aim is mechanism discovery rather than effect estimation, qualitative inquiry is the appropriate instrument (Gioia et al, 2013). We are not testing the propositions above; we derived them through the dialogue between data and theory and present them as the study's output, distinguishing throughout what participants reported from the mechanism we infer.

The evidence comes from eleven semi-directive interviews with knowledge workers purposively sampled across consulting (four), finance (two), technology (two), academia (one) and medicine (two), identified through the authors' professional networks and by referral, and screened so that all held genuinely knowledge-intensive roles; they ranged from daily, unbounded users to a physician in specialty training with no professional use. Selection maximized variation along two dimensions fixed before fieldwork, the visibility of senior AI use and the task-level stakes of AI error: consulting and technology anchored the high-visibility, lower-stakes condition, medicine the low-visibility, high-stakes condition, finance and academia intermediate positions (Table 1). One finance participant, a Moroccan professional recruited in Morocco like the others, works for the Canadian entity of an international group; the physician in specialty training (P-052) supplies contextual material only and is reported as an exploratory interview.

Table 1: The eleven cases

Case	Sector	Lang.	Questions asked (of 37)	Senior AI use observed	Formal training received	Mastery appraisal (grounding)
P-011	Consulting	FR	30	Informal sharing; senior use not explicit	None; informal support	Durable
P-012	Consulting	FR	34	Not reported; manager neutral	Core modules; self-training	Tool-contingent
P-014	Consulting	EN	37	Discreet; seniors use it less than juniors	None	Durable
P-015	Consulting	FR	37	Visible; described as normalizing use	Resources and peer exchanges	Durable, explicit arbitration
P-021	Finance*	EN	29	Visible; manager and executives	None	Tool-contingent
P-022	Finance	EN	28	Manager supportive; use unspoken in team	Mandatory course	Durable claim, low engagement
P-031	Technology	FR	26	Visible senior use; also models for others	None; peer sharing	Mixed, time-dependent
P-032	Technology	FR	18	Not explicit; continuous informal exchange	None	Durable (thin data)
P-041	Academia	FR	28	Supervisor uses rarely; peers visible	None; requested	Balanced
P-051	Medicine	EN	30	None	None	Durable
P-052	Medicine	FR	14	None in practice	None	No data (exploratory)

* Moroccan professional recruited in Morocco, employed by the Canadian entity of an international group. Mastery appraisal read from nodes 2.1 (competence retained) and 2.2 (tool availability).

An eleven-participant sample is a deliberate choice: the logic of qualitative sampling is depth within a bounded phenomenon, not statistical representativeness (Lincoln and Guba, 1985). Interviews followed a thirty-seven-question semi-structured guide covering adoption history, episodes of use and failure, training and support received, the manager's and organization's position, what participants observed of senior and peer use, and how they explained their own successes. The guide was not administered uniformly: six questions were put to all eleven participants, and coverage ranged from fourteen to thirty-seven questions (Table 1). Interviews were conducted in French (six) or English (five), recorded with consent and transcribed verbatim; excerpts from French interviews were translated by the research team, cross-checked for fidelity of meaning and are marked "tr." below.

Analysis followed the principles of Gioia et al (2013) and was conducted in NVivo 12 in two verified cycles. First-order coding applied a thirty-two-node manual to 749 candidate extracts, each carrying the guide question it answered. A consistency check between the analysis workbook and the NVivo project then compared every planned reference with its coded counterpart: 73 per cent matched after the first cycle, and the divergences resolved into six conditions of application left implicit in the manual, fixed as dated arbitration rules and applied uniformly in a second cycle that returned 446 references at 77 per cent conformity. Two rules matter here: observation that legitimizes use and exchange that transmits know-how were separated by mechanism rather than by rank, and a negative answer to a question that was asked, such as "no training", was coded as a documented absence rather than left as silence. Second-order analysis for this paper read the nodes bearing on the leadership question across cases by constant comparison, testing whether each candidate mechanism held where visible senior use was present and dissolved where it was absent. The five themes below draw on the nodes for training and enactive mastery (each carried by all eleven cases), visible senior use and organizational position (nine and eleven), vicarious experience and verbal persuasion (ten and eight), the grounding of confidence and its anticipated fate without the tool (nine), and fluent failure, delegation boundary and proxy agency (nine each). Case coverage matters more than counts: a node carried by nine cases supports a corpus-level claim, a node carried by one supports only an illustration.

Trustworthiness is addressed through the criteria of Lincoln and Guba (1985): credibility through maximum-variation sampling, the retention of a non-adopting case, a negative-case node (seven references, five cases)

and absences coded as results; transferability through the case attributes in Table 1, though we make no transfer claim; dependability and confirmability through the two dated coding cycles and the traceability of every reference from theme to node to source extract. We do not overstate these safeguards: the consistency check is a within-team audit, not independent inter-coder agreement; the manual was built for a wider programme on the durability of AI self-efficacy, so the leadership analysis is a secondary reading of the corpus; and proximity to the Moroccan context risked reading leadership into accounts, a risk we mitigated by disciplined first-order coding and by foregrounding the cases where the mechanism failed.

4. Findings

Formal training was scarce: eight of eleven participants reported none when asked ("Nothing", "No trainings", "None"). Provision, where it existed, took the form of core modules (P-012), learning resources and exchanges of good practice (P-015), and a single mandatory programme, the only one in the corpus delivered as formal instruction:

> *"Yes, there was a training, I attended because it was mandatory, it was provided by an external consultant to help you prompt and use the tools. It was just checking a box for me." (P-022, finance)*

What built confidence instead was doing. Assisted enactive mastery is the only source present in all eleven interviews, and participants described it as self-directed: "I have always been self-taught for subjects like that, I learn by doing" (P-031, technology, tr.); "I learned above all through personal experimentation, testing the tools, comparing the results and progressively refining my practice" (P-011, consulting, tr.). The gap was experiential, not informational, consistent with Proposition 1. Two qualifications follow. Four participants asked for more training, but of a different kind, "for anything beyond asking it and it helps you, over prompts and tricks" (P-022); and the one favourable account of support, P-015's, combined resources with visible senior use and peer exchange, foreshadowing that what mattered was the presence of models, not the format of provision.

Where managers and senior professionals used AI visibly, participants described a change in permission rather than in know-how:

> *"The use of AI by managers and senior profiles is visible. That contributes to normalizing its use within the team." (P-015, consulting, tr.)*

> *"She uses AI a lot for emails and summaries and schedules for her upcoming weeks. […] Knowing that she uses it too means that I am on the right path." (P-021, finance)*

P-015's manager "encourages experimentation while reminding us of the importance of verifying the results" (tr.), a framing that models AI as a craft; in technology, a senior colleague's use worked as motivation, "since he uses it too, it pushes me to improve the way I use it" (P-031, tr.). This is the dual transmission anticipated by Proposition 2, with the symbolic half doing most of the work: what participants took from senior use was that use was sanctioned. The contrast cases separate modeling from sponsorship. P-022 works under a manager he calls "very supportive of AI", in an organization that circulated an AI strategy and made training mandatory, yet this support "has not changed my way of using it"; in his team "everybody uses it but we don't talk about it much", and his own use is confined to proofreading and quick calculations. P-014 reports that "the seniors use it a bit less I would say, juniors it's very obvious. I'd say it's more discreet", and restricts AI to proofreading and paraphrasing. In medicine the absence is complete: "They don't use it, they barely understand it" (P-051). In none of these cases did absent or discreet senior use produce low declared confidence, P-014 is "very confident in my ability given enough time", but it coincided with a narrow perimeter of low-stakes tasks. In a high power-distance context (Hofstede, 2001), senior silence appeared to be read as tacit non-endorsement: use continued but stayed discreet, the pattern Beane (2019) calls shadow learning, and did not expand. What absent modeling withholds is not confidence but the licence to extend it.

A third pattern qualifies the leadership account: the procedural half of vicarious learning, how to prompt, iterate and verify, was transmitted mostly laterally. P-011 learned from observing others "uses I would not have thought of alone, in particular how to formulate requests, iterate, or use AI on very concrete tasks" (tr.); P-041 first tried the tool after a colleague "fascinated by GPT presented it to us" (tr.); P-031 was himself the model, "as they saw me work, they asked how I did it and they started" (tr.). Verbal persuasion was mostly absent, four participants reporting that their capability with AI had never been remarked on. Legitimacy descends from seniors; know-how circulates among peers.

Usefulness on its own did not produce capability belief. The physician who judged the technology capable, "AI is able to diagnose rare disease", added in the same breath, "I don't use it" (P-051); P-022 rated the tool's

answers "7 out of 10" yet said there had "never been a success story with AI". A favourable judgment of the tool coexisted with flat engagement, the seam between TAM and Social Cognitive Theory that Proposition 3 anticipates: usefulness motivates but does not constitute capability. Where the chain did run it ran on trial, "the more I use AI successfully, the more comfortable I am exploring new uses" (P-015, tr.). One case bounds the leadership version of the claim: P-041, with no institutional support and a supervisor who "uses it herself but not often" (tr.), shows the densest engagement in the corpus, initiated on peer models. The legitimating signal appears necessary; leaders are its most efficient but not its only source.

Among participants with comparable daily use, the appraisal given to success, and the grounding of the confidence that followed, diverged. Some grounded it in a competence they retained: "I am definitely the expert, the prompts are mine and the instructions are mine, it is there to assist only" (P-022, finance); "with equal access to the tool, the difference is not about access to AI, but about the capacity to use it well" (P-011, tr.). Others grounded it in the tool:

> *"If I am being honest, it felt like I was wasting my time doing it without AI; with AI it felt like having a magic wand that allowed to do things instantly." (P-021, finance)*

> *"AI saved me that day: I was able to meet the delivery deadline while producing quality work, which I could not have done without Copilot." (P-012, consulting, tr.)*

The first is the durable grounding, the second the tool-contingent one (Sidqui and Zenjari, 2026); in our data structure, mastery appraisal is the aggregate dimension that carries both and is treated as a candidate indicator of durability. Where the difference comes from is readable, tentatively and on three cases, in line with Proposition 4. P-015's manager frames AI as experimentation plus verification, and she alone in the corpus arbitrates explicitly between the two groundings ("the success comes both from the tool and from my expertise", tr.) and states her self-efficacy by task rather than globally, "8 out of 10" for writing and synthesis, "around 6 out of 10" for complex analyses (tr.), the generality dimension Bandura (1997) distinguishes from level. P-021's executives and manager present Copilot as a productivity tool to adopt, and his vocabulary is that of magic wands and "a superpower". P-012's manager is "neutral" and her clients advise using AI "on low value-added tasks" (tr.); her confidence rests predominantly on the tool.

What grounding governed was not the size of the performance gain, which nine of the ten participants who answered reported whichever grounding they held, but the durability of the confidence built on it. Asked what would happen without the tool, tool-contingent participants anticipated collapse, "I would probably panic. I no longer know how to function without it" (P-012, tr.), "I would go back to doing the tasks as I used to, which takes more time and less confidence" (P-021); durably grounded participants claimed continuity, "I'd do it on my own" (P-014), "I could still carry out my tasks thanks to my knowledge, but it would take me more time" (P-015, tr.). Tool-contingent confidence also reached further than the worker could verify: P-012 could "calmly answer my client's various requests, including on subjects I do not master, because I know AI will be there" (tr.), the one clear instance of uncalibrated trust in the corpus (Lee and See, 2004). This is Proposition 5: grounding conditions the durability and calibration of self-efficacy rather than its conversion into performance. Durable grounding did not, however, protect capability itself: P-014 claims an intact expertise while noting that "the more I rely on it the less my own personal touch is felt in my work".

Where legitimacy was absent and the cost of error high, the chain did not run at all, and medicine displayed this failure mode most starkly, illustrating Proposition 6:

> *"Using AI in this field is very reckless, since it tends to hallucinate things, the treatment can be wrong, so who will bear the responsibility of this mistake? […] Who are you going to sue if a mistake happens?" (P-051, medicine)*

P-051 has "never used it in something that matters" and remains "still not confident, I am skeptical about using AI"; the physician in specialty training uses no AI professionally and reports declining trust "because we do not know where the data is stored" (P-052, tr.). Academia, contrary to our expectation, did not echo this pattern: P-041 met the same fluent failures, "ChatGPT gave me fictitious sources, articles that did not exist" (tr.), but in a domain where the error is checkable by the worker and borne by her, responded with a delegation boundary, "I delegate no control to AI" (tr.), and kept engaging. The chain is not self-starting: it requires a legitimating signal and a threat environment in which the worker can detect and own the error. Remove both, as medicine removes both, and the mechanism does not run, however capable the technology is judged to be.

5. Discussion

Prevailing treatments emphasize leadership's behavioral and structural influence: leaders sponsor initiatives, allocate resources and communicate vision, thereby raising usage. Our data separate that sponsorship from something more proximal. A supportive manager, a circulated strategy and a mandatory course left one participant's practice unchanged; a manager seen using the tool for her own emails told another that he was "on the right path". What changed, when workers observed senior use, was internal: a revision of what they believed they were permitted to do. Modeling functioned as a legitimacy signal that lowered the perceived risk of extending use, unlocking the engagement that mastery requires, which reframes leadership from behavioral influence toward cognitive enabler.

The same evidence extends self-efficacy theory while bounding TAM, in two ways the original design did not anticipate. First, the two components of vicarious experience were carried by different people: legitimacy descended from seniors, while procedural know-how circulated laterally among colleagues, and in one case flowed upward from a junior who became the team's model. Bandura (1997) treats observation as a transfer of capability information, "someone like me can do this"; what senior use transmitted here was closer to "engaging with this tool is permissible for someone like me", a signal about legitimacy rather than capability. Whether that is a variant of vicarious experience, a form of persuasion enacted rather than spoken, or a source the four-source taxonomy does not contain is a question we carry forward rather than settle; in hierarchical settings, at least, the transfer of permission and the transfer of technique are separable. Second, observation appeared to shape the mastery appraisal downstream: where a manager framed AI as experimentation to be verified, the follower grounded her confidence in her own developing skill and stated it by task; where executives framed it as a productivity tool to adopt, the follower grounded it in the tool. Grounding did not govern the size of the reported performance gain, which was nearly universal; it governed whether self-efficacy was durable or contingent, anticipating collapse without the tool (Bainbridge, 1983; Sidqui and Zenjari, 2026). This matters for measurement: a survey that finds AI integration raising self-efficacy (Shishakly et al, 2026) cannot distinguish the two groundings when its items ask about working with the tool, and the one instrument that carried a tool-free item found it loading elsewhere (Prather et al, 2026). The same data bound TAM: perceived usefulness was associated with favourable judgments of the tool but neither with engagement nor with capability belief. TAM and UTAUT are not wrong but incomplete for AI, modeling the antecedents of intention while under-specifying the social and experiential process by which capability belief is built.

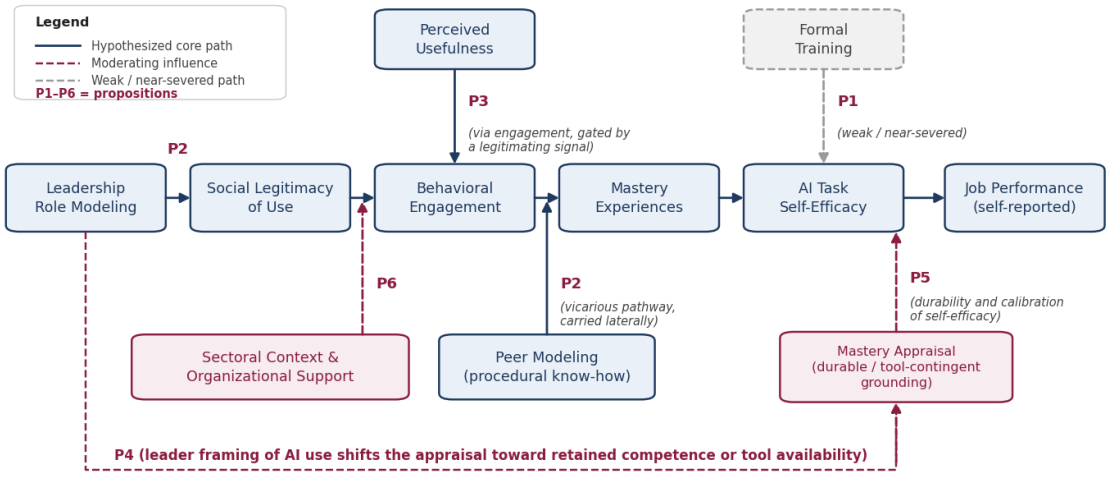


Figure 1: A mechanism model of leadership role modeling, social legitimacy of use and the grounding of AI self-efficacy in knowledge-intensive roles, as revised after analysis

Synthesizing the propositions yields a revised mechanism model (Figure 1). The core path runs from leadership role modeling through social legitimacy of use, behavioral engagement, mastery experiences and AI task self-efficacy to job performance; peer modeling feeds engagement and mastery with procedural know-how, in parallel with the legitimacy leaders supply. Sectoral context and organizational support moderate the upstream link from legitimacy to engagement, and the grounding of self-efficacy, durable or tool-contingent and itself

shifted by how leaders frame AI use, conditions the durability and calibration of the belief that mastery produces. Formal training appears as a near-severed path (Proposition 1).

Two paradoxes follow. The first is AI as empowerment versus threat: the same technology that a finance analyst experienced as "a superpower" and a product lead used to "replace a Product Manager, an architect" (P-031, tr.), a physician experienced as a liability to be managed by avoidance. The valence appeared to be a property not of the tool but of the configuration around it, whether legitimacy was supplied and whether the error could be detected and owned by the worker. The second is leaders as enablers versus gatekeepers: a leader who models AI enables a self-reinforcing cycle of engagement, mastery and confidence, while a silent leader, especially in a high power-distance setting, withholds the signal that would unlock it, often unintentionally. Leadership silence is therefore not the absence of an intervention but an intervention in itself.

Practically, these findings invert the usual investment logic. Formal provision was rare and, where mandatory, confidence-neutral; the participants who asked for training asked for something task-anchored and advanced, not another prompting session. The most effective intervention in our data was a respected senior using AI in plain sight and, in the one case where self-efficacy was both high and well calibrated, narrating the verification. Managers might treat their own observable behavior as the adoption strategy, and the framing they attach to it as a lever on whether followers build a competence or a dependency, the more so in Morocco, where high power distance (Hofstede, 2001) may amplify both the value of leader engagement and the cost of leader silence. For researchers, the task-referenced self-efficacy participants volunteered, distinct levels for writing and for analysis, argues for instruments that ask about tasks rather than about the tool, and that include what the worker can do without it.

Five limitations bound these claims. Eleven purposive interviews support mechanism discovery, not prevalence: the mastery-appraisal reading rests on three cases and the sectoral contrasts on one or two participants per sector. The guide was not administered uniformly, and the withdrawal question on which the durability reading depends was put directly to six participants, with answers for three others recovered from elsewhere in their interviews. Self-reports are vulnerable to recall and rationalization, performance is self-reported throughout, and cross-sectional data cannot establish the temporal ordering the model implies (Baron and Kenny, 1986). The findings are situated largely in one country, whose power-distance profile both makes it informative and limits transfer. And a single team coded and interpreted the data. The propositions accordingly invite a quantitative phase: a multi-sector survey operationalizing leadership role modeling, peer modeling, social legitimacy of use and AI self-efficacy with its grounding, and a design in which performance is observed with the tool present and withdrawn, so that durable and tool-contingent self-efficacy can be told apart by behavior rather than by report. Intervention studies contrasting leader demonstration with training would sharpen these conjectures further.

6. Conclusion

Organizations have largely treated AI adoption as a problem of access and instruction. Our exploratory evidence points elsewhere: the binding constraint appears to be capability belief, and the most potent organizational lever on it may be not training, nor sponsorship, but the visible behavior of leaders. When leaders use AI first, and use it as an observable, learnable craft, they appear to supply the legitimacy that unlocks engagement, leave to peers the know-how that builds mastery, and set the framing that lets workers ground their confidence in a skill they own rather than in a tool they cannot do without. When leaders are silent, especially when hierarchy is salient, use goes discreet and the chain does not extend. We offer these mechanisms as propositions, not conclusions; eleven interviews cannot settle the question, but they can sharpen it, relocating the study of AI adoption from the cognition of the tool to the cognition of the self, and naming leadership, modeled rather than mandated, as the social act that bridges the two.

Ethics Declaration: Participation in this study was entirely voluntary and based on informed consent. Participants were fully briefed on the purpose of the research, the nature of their involvement, and their right to withdraw at any time without consequence. In accordance with Moroccan Law 09-08 on the protection of personal data (in alignment with GDPR rules), no sensitive data were collected, and all information was anonymized prior to analysis. Audio recordings were destroyed following transcription and anonymization, and anonymized data are securely stored for research purposes only. At the time of the study, formal ethical clearance was not required under the institutional policies of Groupe ISCAE for non-invasive research involving voluntary adult participants and anonymized data.

AI Declaration: A generative AI assistant (a large language model) was used to support the structuring, drafting and language editing of this manuscript. The study design, data collection, coding, thematic analysis,

interpretation and conclusions are the work of the authors. All AI-assisted text was reviewed, verified and edited by the authors, who take full responsibility for the content of the paper, including the accuracy of all reported data and quotations.

References

Avolio, B.J., Kahai, S. and Dodge, G.E. (2000) "E-Leadership: Implications for Theory, Research, and Practice", *The Leadership Quarterly*, Vol 11, No. 4, pp 615–668.

Bainbridge, L. (1983) "Ironies of Automation", *Automatica*, Vol 19, No. 6, pp 775–779.

Bandura, A. (1977) *Social Learning Theory*, Prentice-Hall, Englewood Cliffs.

Bandura, A. (1997) *Self-Efficacy: The Exercise of Control*, W.H. Freeman, New York.

Baron, R.M. and Kenny, D.A. (1986) "The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations", *Journal of Personality and Social Psychology*, Vol 51, No. 6, pp 1173–1182.

Beane, M. (2019) "Shadow Learning: Building Robotic Surgical Skill When Approved Means Fail", *Administrative Science Quarterly*, Vol 64, No. 1, pp 87–123.

Brynjolfsson, E., Li, D. and Raymond, L. (2025) "Generative AI at Work", *The Quarterly Journal of Economics*, Vol 140, No. 2, pp 889–942.

Compeau, D.R. and Higgins, C.A. (1995) "Computer Self-Efficacy: Development of a Measure and Initial Test", *MIS Quarterly*, Vol 19, No. 2, pp 189–211.

Davis, F.D. (1989) "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology", *MIS Quarterly*, Vol 13, No. 3, pp 319–340.

Dell'Acqua, F., McFowland, E., Mollick, E.R., Lifshitz-Assaf, H., Kellogg, K.C., Rajendran, S., Krayer, L., Candelon, F. and Lakhani, K.R. (2023) *Navigating the Jagged Technological Frontier: Field Experimental Evidence of the Effects of AI on Knowledge Worker Productivity and Quality*, Working Paper 24-013, Harvard Business School, Boston.

Eden, D. (1992) "Leadership and Expectations: Pygmalion Effects and Other Self-Fulfilling Prophecies in Organizations", *The Leadership Quarterly*, Vol 3, No. 4, pp 271–305.

Gioia, D.A. and Chittipeddi, K. (1991) "Sensemaking and Sensegiving in Strategic Change Initiation", *Strategic Management Journal*, Vol 12, No. 6, pp 433–448.

Gioia, D.A., Corley, K.G. and Hamilton, A.L. (2013) "Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology", *Organizational Research Methods*, Vol 16, No. 1, pp 15–31.

Hofstede, G. (2001) *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations*, 2nd ed, Sage, Thousand Oaks.

Judge, T.A., Jackson, C.L., Shaw, J.C., Scott, B.A. and Rich, B.L. (2007) "Self-Efficacy and Work-Related Performance: The Integral Role of Individual Differences", *Journal of Applied Psychology*, Vol 92, No. 1, pp 107–127.

Lee, J.D. and See, K.A. (2004) "Trust in Automation: Designing for Appropriate Reliance", *Human Factors*, Vol 46, No. 1, pp 50–80.

Lincoln, Y.S. and Guba, E.G. (1985) *Naturalistic Inquiry*, Sage, Beverly Hills.

Marakas, G.M., Yi, M.Y. and Johnson, R.D. (1998) "The Multilevel and Multifaceted Character of Computer Self-Efficacy: Toward Clarification of the Construct and an Integrative Framework for Research", *Information Systems Research*, Vol 9, No. 2, pp 126–163.

Noy, S. and Zhang, W. (2023) "Experimental Evidence on the Productivity Effects of Generative Artificial Intelligence", *Science*, Vol 381, No. 6654, pp 187–192.

Prather, J., Margulieux, L., Kharitonova, Y., Yang, Y., Reeves, B.N., Denny, P., Gorson Benario, J., Holmes, E.D.V., Spaulding, E., Barbre, G., Blake, M. and Leinonen, J. (2026) "A Validated Scale Measuring Student Self-Efficacy for Programming with Generative AI", *Proceedings of the ACM Conference on* International Computing Education Research (ICER 2026), Vol 1, ACM, New York, pp 59–72.

Sidqui, O. and Zenjari, A. (2026) "Training Wheels or Real Balance? AI Self-Efficacy and Performance in Knowledge-Intensive Work: A Systematic Review", *Human Resources Management and Services*, Vol 8, No. 4, 6167.

Shishakly, R., Khattak, M.N. and Abukhait, R. (2026) "Artificial Intelligence in the Workplace: Examining the Role of Perceived Service Quality and Employee Crafting in Shaping Resilience, Self-Efficacy and Innovation", Current Psychology, Vol 45, Article 1349.

Stajkovic, A.D. and Luthans, F. (1998) "Self-Efficacy and Work-Related Performance: A Meta-Analysis", Psychological Bulletin, Vol 124, No. 2, pp 240–261.

Venkatesh, V., Morris, M.G., Davis, G.B. and Davis, F.D. (2003) "User Acceptance of Information Technology: Toward a Unified View", *MIS Quarterly*, Vol 27, No. 3, pp 425–478.

Wang, Y. and Chuang, Y. (2024) "Artificial Intelligence Self-Efficacy: Scale Development and Validation", *Education and Information Technologies*, Vol 29, pp 4785–4808.

PhD Research Papers

Challenges and Opportunities of Diversity, Equity and Inclusion in Accounting: Insights from an Eastern European Context

Raluca Andreea Achim and Camelia Iuliana Lungu
Bucharest University of Economic Studies, Romania

achimraluca19@stud.ase.ro
camelia.lungu@cig.ase.ro

Abstract: Diversity, equality, and inclusion (DEI) initiatives have gained significant prominence in the contemporary accounting profession and organizational cultures, particularly in light of the increasingly globalized and heterogeneous nature of societies worldwide. In this context, this study aims to identify the main challenges and opportunities associated with DEI in accounting by examining perceptions of DEI policies and practices and their expected future impact. This research stands out by examining the perceptions of young accounting professionals, from an emerging Eastern European context, where DEI integration in accounting education and practice remains limited but increasingly relevant. Thus, the analysis is based on a questionnaire with data collected from 89 accounting students enrolled in higher education programs in Romania, who also perform accounting-related responsibilities in national and international companies. DEI is conceptualized as a multidimensional construct considering dimensions regarding DEI-related attitudes, institutional and educational support, career equity perceptions, as well as perceived discrimination in academic and professional accounting environments. The analysis explores whether there are significant differences in DEI perception across respondents based on gender. Muchmore, the study investigates the extent to which perceptions of DEI policies and practices influence expectations about the future impact on the accounting profession, the quality of ESG performance, as well as the topics addressed within accounting education. The methodological approach combines validity and reliability assessment for DEI construct using Kaiser-Meyer-Olkin test for sampling adequacy, and Cronbach's alpha coefficients to evaluate the internal consistency of the identified dimensions. Parametric (ANOVA) and non-parametric (Mann–Whitney U) tests are employed to examine group differences and the determinants of perceived DEI impact. Exploratory factor analysis was operationalized to identify significant variables that may explain latent relationships validated through regression analysis. Drawing on social identity theory, the findings demonstrate that perceptions on DEI practices are shaped by individuals' social group affiliations, leading to systematic difference in how diversity, inclusion, and inclusion are evaluated across gender characteristics. Overall, the findings indicate positive attitudes toward DEI initiatives and their relevance for the accounting profession and education, as well as for ESG performance in terms of ethical awareness, professional development, and organizational inclusiveness. The study has academic and practical contributions, providing insights for professional bodies and policymakers aiming to enhance the effectiveness and credibility of DEI initiatives in the accounting profession.

Keywords: Diversity, Equity and inclusion initiatives, Young accounting professionals, Ethical awareness, Social identity theory, Tests of differences

1. Introduction

In recent years, issues related to diversity, equity and inclusion (DEI) have become central themes in the evolution of accounting profession, reflecting not only a business need but broader societal concerns regarding fairness and equal opportunities (Showkat and Yahya, 2025; Rabl et al., 2020). Nowadays, the accounting profession is increasingly shifting from a purely technical role toward a more socially responsible profession, where ethics play a crucial role in shaping both professional practice and organization legitimacy (Fota et al., 2024). As organizations face growing pressure to demonstrate accountability and sustainability, DEI is no longer solely viewed as a normative imperative, but also as a factor that may influence both professional education and practice, and the future development of the accounting field. In this evolving context, understanding how different categories of accounting professionals perceive DEI and the factors that shape these perceptions become essential for anticipating how the profession will adapt to future challenges.

Recent studies conducted by major accounting organizations and professional bodies further highlight both progress and ongoing challenges regarding DEI concerns within the profession. A global survey conducted by Association of Chartered Certified Accountants (ACCA, 2021) shows that while the accounting profession is generally perceived as an inclusive profession, nearly two thirds of professionals believe that future progress is needed in ensuring equal representation and opportunities along with effective inclusion practices. At the organizational level, PwC's (2026) reports show that gender-pay gaps and disparities in representation at senior levels persist, indicating structural barriers to advancement. The AFECA (2022) report shows that Romania stands out in the European accounting profession for having one of the highest levels of women representation (77.9%), but only 12% female as board members, emphasizing a substantial gap between participation in the profession and access to leadership roles. According to the European Institute for Gender

Equality (2025), Romania continues to face important challenges regarding gender equality, particularly in domains related to economic participation and decision-making positions, ranking 23rd among the 27 EU Member States in the 2025 Gender Equality Index.

Despite the growing recognition of the importance of DEI in accounting, previous literature tends to focus mainly on the gender transformation within the accounting profession (Deaconu et al., 2026a; Faragalla et al., 2022), without taking into consideration different dimensions of DEI, such as attitudes, organizational practices, or equity in career advancement. Furthermore, evidence from emerging economies, including Romania, remains scarce. To address these gaps, this study develops a multidimensional perspective by identifying three underlying dimensions that shape the adoption of DEI policies and practices within organizational culture: *ethical awareness, professional development, and organizational inclusiveness*. This study advances the existing literature by offering a multidimensional perspective on DEI in accounting that extends beyond gender to encompass ethical awareness, professional development, and organizational inclusiveness. It further enhances the extant evidence by examining the relevance of DEI to the future of the profession and ESG performance, within the Romanian context. Thus, the aim of this research is to explore the views of young accounting professionals towards the importance of DEI policies and practices, by exanimating gender-based differences in DEI perceptions and how the three identified dimensions influence the future impact on the profession and education, and the contribution to ESG performance.

The rest of the paper is organized as follows. Section 2 covers an overview of the existing literature on the relation on DEI in the accounting profession, emphasizing social identity theory as a theoretical foundation for understanding differences in DEI perceptions among accounting professionals and development of the research hypotheses. Section 3 presents the research approach, describing data collection and processing, while the key findings are debated in Section 4. Section 5 provides an overview of the findings, limitations, and directions for future research.

2. Literature Review, Underlying Theory and Research Hypotheses

In this contemporary globalized society, characterized by a growing need for organizations to address increasingly heterogeneous workforce, accounting profession starts to demonstrate a heightened commitment to promoting DEI policies and practices seeking to shift the reputation of a conservative profession (Powell et al., 2026). Shaping an integrated culture that promotes diverse perspective, equitable treatment and inclusive practices enable organizations to establish an ethical workplace environment that enhances employee appreciation of professional opportunities, preventing discrimination and inequality practices, thus contributing to an improvement in individual diversity acceptance (Sadiq et al., 2026; Showkat and Yahya, 2026).

The theoretical framework used to define the implication of a more diverse and inclusive workplace environment in accounting profession is outlined from a sociological theoretical perspective. *Social identity theory* is widely regarded as particularly relevant when examining human behavior and attitudes toward the implementation of DEI policies and practices within the accounting profession. According to this theory, individuals' sense of personal identity is influenced by their affiliation with prominent social groups, and the manner in which they evaluate organizations is based on the extent to which the institutional practices are in line or in opposition with their identities (Evan et al. 2023). Similarly, Showkat and Yahya (2026) consider that social identity theory offers a valuable theoretical framework for understanding employees' identification with organizational DEI policies and practices, as these initiatives shape employees' sense of belonging and enhance their level of workplace involvement and commitment.

Previous research in the field of accounting education highlights the importance of ethical perception related to the creation of an inclusive culture that promotes diversity, equitable opportunities and inclusive practices, as these can influence students' professional expectations, and future career aspirations. Diez-Busto et al. (2023) presents the importance of cultivating accounting students' ethical awareness and interpersonal competencies that enable professionals to respond to complex business challenges. Almasarwah et al. (2026) posits that exposure to diverse and inclusive environments in accounting education contributes to students' sense of belonging, critical thinking and problem-solving skills, qualities essential for addressing the complexity of ethical decision-making issues that appears in accounting in this globalized professional environment.

Despite the existing literature that focuses on the importance of DEI in accounting education designed to prepare future professional accountants, a growing body of research acknowledges that the efficacy of these initiatives is contingent on their translation into organizational culture. According to Rabl et al. (2020)

employees' perceptions of an organizational integration of DEI policies and practices are associated with perceived organizational ethical conduct. Sadiq et al. (2026) emphasize that DEI policies and practices contribute not only to creating more inclusive workplaces but also to fostering organizational behavior that supports broader sustainability outcomes.

Examining the existing literature, scarce emphasis is found for developing countries on the opportunities and challenges faced by women professionals in terms of pay equity, access to leadership and decision-making positions, experiences of gender discrimination or career advancement in the workplace. Faragalla et al. (2023) shed light on the gender inequalities within the accounting profession in a developing country, Romania, based on how institutional factors such as rewards practices, opportunities, and access to top positions shape women's perceptions of workplace discrimination. In order to present empirical understanding of gender transformation within the Romanian accounting profession, Deaconu et al. (2026b) explore whether the representation of women reflects the country's communist legacy, reveling that political, social and cultural factor influenced women emancipation. However, despite women's strong presence in the profession, barriers related to career advancement in leadership positions and decision-making authority continue to persist. These findings suggest that although Romanian accounting profession have achieved relatively high female representation, the progress made over time has not fully translated into equal opportunities or the elimination of gender inequalities. Similarly, Akonnor and Krah (2025) shows that gender equality and inclusiveness continue to represent major concerns for women professional accountants and students in developing countries.

Contributing to addressing part of the previous studies' limitations, this research seeks to fill the gaps and extend the existing literature. It shades light on the multifaceted landscape of diversity, equity, and inclusion in the workplace, focusing on three critical dimensions: *ethical awareness* of creating an inclusive workplace environment, equitable *professional development opportunities*, and the policies and practices that are adopted to ensure *organizational inclusiveness*. In order to ensure the effective integration of DEI policies and practices into the future workforce of the accounting profession, it is essential to understand young professionals' perceptions of these concepts as they will contribute to shaping organizations. This awareness is important considering the globalized setting, where workforce tends to move across different social contexts with diverse social norms regarding the implementation of DEI policies and practices that may influence their perceptions and expectations regarding inclusive organizational cultures. In undertaking this research perspective, the study contributes to a more nuanced understanding of how accounting professionals perceive the importance of creating inclusive workplace environment that prioritize DEI policies and practices in accounting profession and education and how these initiatives influence the quality of ESG performance by providing evidence from Romania, an Eastern European country where women still continue to face challenges in achieving equal representations in leadership positions. Hence, this research is conducted in order to answer three research hypotheses:

RH1. There are significant differences in how gendered-clustered accounting professionals perceive DEI policies and practices.

RH2. The perception of ethical awareness, professional development, and organizational inclusiveness regarding DEI policies and practices significantly influence the opinion on the future of accounting profession.

RH3. The perception of ethical awareness, professional development, and organizational inclusiveness regarding DEI policies and practices significantly influence the beliefs that organizations with diverse accounting teams achieve superior ESG performance.

RH4. The perception of ethical awareness, professional development, and organizational inclusiveness regarding DEI policies and practices significantly influence the topics addressed within accounting education.

3. Research Methodology

The research aims to assess students' perceptions of DEI policies and practices in the accounting profession, focusing on how ethical awareness, professional development and organizational inclusiveness influence the perceived importance of DEI initiatives on the future accounting profession, the quality of ESG performance, as well as the accounting education. The survey instrument comprised questions developed in line with the topics under debate in the profession and prior literature on the subject (Deaconu et al., 2026b; Faragalla et al., 2023). The survey was pre-tested with six students and minor changes were made to questions to ensure their

clarity. The survey was disseminated electronically to students enrolled in accounting programs in Romania. Responses were collected between February and March 2026. Table 1 describes the sample.

Table 1: Demographic characteristics of respondents

Characteristics	Categories	Frequency (N)	Percent (%)
Gender	Female	59	66.29
	Male	30	33.71
Age	18-24	59	66.29
	25-30	17	19.10
	Over 30	13	14.61
Level of education	Undergraduate	53	59.55
	Master	24	26.97
	PhD	12	13.48
Level of experience	None	11	12.36
	Short-term	38	42.70
	Medium	13	14.61
	Long-term	27	30.34

The sample is characterized by a higher representation of female respondents (66.29%), while male respondents make up 33.71% of the total. Most participants are undergraduate students (59.55%), followed by master's students (26.97%) and PhD students (13.48%), mirroring the existence of a larger number of students enrolled in undergraduate programs compared to master's and doctoral studies. The distribution of respondents' experience in the accounting profession indicates that the largest proportion is represented by individuals with short-term engagement (42.70%), followed by those with long-term experience (30.34%). This distribution provides a balanced overview of perceptions among individuals at various stages of their development.

The survey includes a list of 15 items identified in the literature and designed to assess accounting students' perception of DEI policies and practices within the accounting profession. The items cover aspects related to *ethical awareness* of creating an inclusive culture that improves corporate sustainability reporting quality, ethical decision-making process, and professional judgement; *professional development* opportunities associated with promotions, reward, discrimination issues; and *organizational inclusiveness* practices related to fair access to executive roles, mentoring or networking opportunities. Responses are measured on a 5-point Likert scale (1-Strongly Disagree; 2-Disagree; 3-Neutral; 4-Agree; 5-Strongly Agree). The individual characteristics of respondents are measured based on specific intervals. Appendix 1 presents the measurement items included in the questionnaire and the corresponding constructs used in the statistical and econometric analysis.

Consistent with the approach adopted by Churyk et al. (2026) and Faragalla et al. (2022), an exploratory factor analysis with Varimax rotation was conducted to identify the underlying main dimensions of the construct. The suitability of the data for factor analysis was first assessed using the Kaiser Mayer Olkin (KMO) test, with an overall value of 0.851, indicating a high level of sampling adequacy. Cronbach's alpha is used to ensure reliability of data. All constructs had values above 0.7, with an overall mean of 0.913, suggesting a very strong internal consistency (Churyk et al., 2026). The variance inflation factor (VIF) values were all below 2.0, supporting the absence of multicollinearity.

To verify the RH1, a univariate analysis with estimation of equality of means between the groups. Difference test is performed using ANOVA parametric test, and to ensure the robustness of the results, non-parametric Mann-Whitney Wilcoxon test is employed.

To verify RH2, RH3, and RH4, an exploratory factor analysis was conducted using principal component analysis in order to identify latent relationships among the observed variables and the interpretable factors, based on regression analysis. Within the primary list of 15 constructs, three items were identified as possible dependent variables, while, the rest of 12 constructs were clustered in three factors (Appendix 2), further included in the econometric analysis. The regression model specifications employed are outlined below:

$API_DEI = \beta_0 + \beta_1 EthicalAwarness + \beta_2 ProfessionalDevelopment + \beta_3 OrganizationalInclusiveness + \beta_4 ControlVariables$ (1)

$ESG_DEI = \beta_0 + \beta_1 EthicalAwarness + \beta_2 ProfessionalDevelopment + \beta_3 OrganizationalInclusiveness + \beta_4 ControlVariables$ (2)

$AE_DEI = \beta_0 + \beta_1 EthicalAwarness + \beta_2 ProfessionalDevelopment + \beta_3 OrganizationalInclusiveness + \beta_4 ControlVariables$ (3)

4. Results and Discussions

To address the differences in gendered-clustered accounting professionals (RH1), parametric and non-parametric tests illustrate the significance of differences in means for the DEI policies and practices' perception between the two groups (Table 2). The results (ANOVA tests) reveal statistically significant gender differences regarding the perception of access to top management positions and the achievement of gender equality in leadership position, suggesting that female respondents may hold a more critical perception of equality in career advancement opportunities within the accounting profession. Women tend to perceive greater barriers in accessing management positions and maintain that gender-based inequalities continue to persist within leadership structures within Romanian accounting profession.

Table 2: Reliability tests, descriptive statistics, and differences in means tests

Variable	Cronbach alpha	KMO test	Overall Mean	Female (N=59)	Male (N=30)	Diff	ANOVA	Mann-Whitney
API_DEI	0.913	0.787	3.27	3.339	3.134	0.206	1.05	1.028
ESG_DEI	0.896	0.882	3.753	3.627	4	-0.372	-1.55	-1.754*
AE_DEI	0.896	0.916	3.382	3.390	3.367	0.023	0.1	0.094
DEI_Importance	0.894	0.873	4.045	4.034	4.067	-0.033	-0.15	-0.148
DEI_ProfessionalJudgement	0.897	0.845	4.101	4.136	4.034	0.103	0.5	0.792
DEI_EthicalDecision	0.897	0.855	3.854	3.831	3.9	-0.07	-0.3	-0.509
DEI_PoliciesPreference	0.897	0.813	3.764	3.831	3.634	0.197	0.75	0.372
DEI_ReportingQuality	0.894	0.880	3.82	3.882	3.7	0.181	0.75	0.545
DEI_EquitableOpportunities	0.904	0.795	3.64	3.543	3.833	-0.291	-1.1	-1.393
DEI_Discrimination	0.901	0.832	3.034	2.932	3.234	-0.301	-0.95	-1.004
DEI_GenderEqualityLeadership	0.904	0.812	3.461	3.305	3.767	-0.462	-1.7*	-1.708*
DEI_Promotion	0.897	0.868	3.36	3.271	3.534	-0.262	-0.95	-1.182
DEI_Reward	0.897	0.828	3.341	3.373	3.276	0.097	0.35	0.205
DEI_Opportunities	0.895	0.899	3.36	3.424	3.234	0.191	0.6	0.369
DEI_TopManagementPosition	0.906	0.752	3.506	3.356	3.8	-0.444	-1.7*	-1.792*

Muchmore, the Mann Whitney test confirms the ANOVA results and reveals additional statistically significant gender differences regarding the perception of how diverse and inclusive organizational accounting teams tend to perform better on ESG requirements. These results are supported by Deaconu et al. (2026a) who provide evidence regarding gender discrimination in leadership positions within accounting professional association in Romania, despite the significant feminization of the profession in Romania. Contrary, Faragalla et al. (2023) emphasize that Romanian women accountant do not perceive promotion, rewards and access to top management positions as determinants of gender discrimination.

To address *RH2, RH3, and RH4*, the factor analysis, operationalized with varimax rotation, identified three underlying factors of DEI perceptions among accounting professionals (Appendix 2): ethical awareness (5 items), professional development (4 items), and organizational inclusiveness (3 items), similar with Churyk et al. (2026). The three variables were used further within the econometric models to verify the level and significance of their influence on DEI policies and practices.

Table 3: Regression analysis results

VARIABLES	DV: API_DEI (RH2)	DV: ESG_DEI (RH3)	DV: AE_DEI (RH4)
EthicalAwarness	0.231**	0.330***	0.359***
	(2.016)	(3.042)	(3.307)
ProfessionalDevelopment	0.032	0.234***	0.216**
	(0.348)	(2.656)	(2.442)
OrganisationalInclussivness	-0.219**	0.322***	0.457***
	(-2.271)	(3.527)	(5.001)
StudyLevel	-0.087	0.219	0.014
	(-0.602)	(1.599)	(0.102)
Gender	-0.103	0.266	-0.200
	(-0.522)	(1.426)	(-1.069)
AccountingExperienceLevel	-0.096	-0.040	0.103
	(-0.965)	(-0.422)	(1.087)
Constant	3.558***	-0.032	-0.367
	(6.299)	(-0.060)	(-0.687)
R-squared	0.129	0.471	0.519
VIF	1.29	1.29	1.29
Breusch-Pagan / Cook-Weisberg test	0.33	1.29	0.06
Ramsey test	0.98	1.63	0.33

N=89 observations, t-statistics in parentheses; *** p<0.01, ** p<0.05, * p<0.1

The results presented in Table 3 validate the research hypotheses, emphasizing that *ethical awareness* of the implementation of robust DEI policies and practices exerts a positive and statistically significant influence on accounting student perceptions regarding the future impact of DEI initiative on the accounting profession (RH2) (β = 0.231, p<0.05), the contribution of diverse accounting teams on ESG performance (RH3) (β = 0.330, p <0.01), and the role of DEI in accounting education (RH4) (β = 0.359, p<0.01). Respondents who place greater importance on diverse, equitable and inclusive values on ethical decision-making procedures and consider that DEI improves professional judgment and corporate sustainability performance are more likely to recognize the benefits of robust DEI initiatives for the future development of the accounting profession. By identifying ethical awareness as a significant predictor of positive attitudes toward the future impact of DEI initiatives on the accounting profession, the contribution to of diverse theme on ESG performance, and the integration of DEI principals within accounting education, these findings may assist educators, professional bodies, and regulators to design initiatives aimed at strengthening the ethical and sustainability-oriented mindset of future accounting professionals.

Further, results show that *professional development* does not significantly influence perceptions regarding the future impact of DEI initiatives on the accounting profession (RH2) (β=0.032, p>0.1). However, the perceptions related to promotions practices, reward equality, career development opportunities and gender discrimination exert a positive and statistically significant influence on the importance of diverse teams on ESG performance (RH3) (β = 0.234, p<0.01), and on DEI related topics in accounting education (RH4) (β=0.216, p<0.05).

Organizational inclusiveness exhibits a statistically significant negative effect on perceptions regarding the future impact of DEI policies and practices on the accounting profession (RH2) (β=-0.219, p<0.05). This negative relationship may suggest that students who already perceive the profession as inclusive consider additional equitable practices as less likely to generate substantial changes in the future. The positive effects observed for ESG performance (RH3) (β=0.322, p<0.01), and accounting education (RH4) (β=0.457, p<0.01), indicate that students who perceive higher level of inclusiveness recognize the benefits of DEI in promoting sustainability related outcomes and of integrating DEI principals within accounting education.

These findings are consistent with those of Cohen et al. (2020) showing that bias against female promotions to top level positions, structural effects related to lack of mentoring opportunities and cultural centred factors

related to ethical treatment significantly influence female accounting professional's perception of the glass ceiling phenomena. Similarly, Rabl et al. (2024) emphasize the positive effect of employees' personal value for DEI initiatives on the nexus between their perceptions of an organizational integration and learning approach to DEI and perceived organizational ethical values. The positive and significant effects identified between DEI policies and practices and students' perceptions regarding the contribution of diverse accounting teams on ESG performance are consistent with findings of Sadiq et al. (2026) who demonstrate that employees' perceptions of organizational commitment to DEI initiatives positively impact sustainability related outcomes related to societal concerning employee's well-being and to environmental concerns. The findings are also comparable with those of Yadav et al. (2026) who show that implementing targeted DEI policies and practices can foster employee perceptions towards equitable initiatives, enhancing corporate performance. The importance of ethical awareness, professional development, and organizational inclusiveness in accounting education is also emphasized by Akonnor and Krah (2025) who highlight the importance of professional guidance frameworks, education support, and targeted initiatives for career progression opportunities in fostering gender equality in accounting profession.

These findings offer robust empirical evidence for the theoretical framework of social identity theory by illustrating the effects of positive assessments of DEI policies and practices on students' perceptions regarding the future impact on accounting profession, the contribution to ESG performance, and the importance for the accounting education. Thus, this study provides a solid contribution to the social identity theory framework by illustrating that the effects of DEI-related perceptions are not homogeneous among accounting professionals, but are shaped by distinct dimensions of ethical awareness, professional development, and organizational inclusiveness, representing an important mechanism through which individuals evaluate professional opportunities within the accounting profession, reflecting the influence of social group identity to attitudes towards DEI related initiatives.

5. Conclusions

This empirical study aims to examine the perception of DEI policies and practices within the accounting profession and investigates the factors that influence expectations regarding their future impact, ESG performance and accounting education, using three underling dimensions: ethical awareness, professional development, and organizational inclusiveness explained under social identity theory. The findings indicate that Ethical awareness represents the most consistent predictor across all models, positively influencing students' perceptions of DEI-related outcomes on accounting profession. These results suggest that ethical awareness constitutes a key component in the recognition of value of inclusive and socially responsible professional conduct. Professional development and organizational inclusiveness positively influence the perception of how diverse accounting teams influence ESG performance and accounting education but show mixed results as related to perceptions of DEI's future impact on the profession. These findings are broadly consistent with previous research (Sadiq et al. 2026; Akonnor and Krah, 2025; Rabl et al., 2024) emphasizing the role of ethical and inclusive organizational practices in shaping perceptions of DEI in accounting profession. Overall, the findings indicate that the accounting professionals perceive DEI as a multifaced concept, with implications extending beyond workplace equality, encompassing aspects such as organizational sustainability and educational enhancement. These findings therefore suggest that DEI should not be regarded as a homogenous construct, but rather as a multidimensional concept that addresses an integrated organizational and professional issue.

This research stands out by examining the perceptions of young accounting professionals, from an emerging Eastern European context, where DEI integration in accounting education and professional practice remains a subject that, despite its present limitations, is increasingly recognized as being of crucial importance for organizational culture and employee well-being, and by adopting a multidimensional perspective of DEI. The results make a significant contribution to the field of social identity theory by emphasizing that the perceptions of accounting students on DEI policies and practices are shaped by distinct dimensions that influence professional, educational, and sustainability-related outcomes. From a practical standpoint, the findings highlight the necessity for accounting education and practice to place greater emphasis on ethical principles and inclusive practice that promote equality of opportunity. Universities and professional bodies may benefit from these insights when designing curricula or training programs, ensuring that future accounting professionals are adequately prepared for a profession that places increasing value on equitable practices, ethical responsibility and transparency.

Despite its contributions, this study has certain limitations that highlight avenues for future research perspectives. Firstly, its cross-sectional design limits the possibility to establish casual relationships between the examined variables. Thus, future research could adopt longitudinal approaches to examine how accounting professionals' attitudes toward DEI evolve over time, comparing different perspectives of generations. Secondly, the study is constrained by the relatively small sample size of Romanian accounting professionals, which may limit the applicability of the findings to a broader demographic context. Future research should consider a more varied sample, drawn from diverse geographical regions and educational systems. Moreover, future research perspective could involve the perspectives of organizational leaders in order to investigate wheatear the benefits of DEI identified by accounting professionals are recognized and implemented by those responsible for organizational sustainability decision-making processes.

Acknowledgements

This paper was co-financed by the Bucharest University of Economic Studies during the PhD program.

Ethics Declaration: Ethical clearance was not required for the research.

Declaration of generative AI: We declare that no authors used generative AI in scientific writing during the preparation of this work.

References

ACCA (2021) Leading inclusion and diversity in the accountancy profession https://www.accaglobal.com/gb/en/professional-insights/global-profession/diversity_inclusion.html.

AFECA (2022) Gender diversity in the European accountancy profession https://accountancyeurope.eu/wp-content/uploads/2022/12/Afeca_Gender-Diversity-in-the-European-Accountancy-Profession.pdf.

Akonnor, A. and Krah, R. (2025) "Professional bodies and gender equality in accounting: exploring women's perspectives in Ghana", Journal of Accounting in Emerging Economies, Vol.15, No.4, pp 907-926. https://doi.org/10.1108/jaee-06-2023-0182.

Almasarwah, A., Hasnaoui, A., Alajmi, A., Rossi, M. and Salloum, C. (2026) "Diversity in US accounting education: how professor representation shapes student experiences", Journal of Financial Reporting and Accounting, pp 1–18. https://doi.org/10.1108/jfra-04-2025-0273.

Churyk, N.T., Gulko, N., McGuigan, N. Middelberg, S.L., Lento, C., Blondeel, E., Bouten, L., Sarwar, M. and Mintah, E.O. (2026) "The role of gender in student perceptions of teaching excellence in accounting", Journal of Accounting Education, Vol.74, 101030, https://doi.org/10.1016/j.jaccedu.2026.101030.

Deaconu, A., Filip, C.I. and Nistor, C.S. (2026a) "Gender portrayal within a feminized accounting profession: an exploration of women's representation in the Romanian accounting association", Qualitative Research in Accounting & Management, pp 1–35. https://doi.org/10.1108/qram-05-2024-0099.

Deaconu, A., Nistor, C.S. and Filip, C.I. (2026b) "A more egalitarian gendered experience in the accounting profession in Romania: a communist legacy?" Accounting, Auditing & Accountability Journal, pp 1–35. https://doi.org/10.1108/aaaj-11-2024-7541.

Diez-Busto, E., Palazuelos, E., San-Martín, P. and Montoya del Corte, J. (2023) "Developing accounting students' professional competencies and satisfaction through learning experiences: Validation of a self-administered questionnaire", The International Journal of Management Education, Vol.21, No.3, 100859. https://doi.org/10.1016/j.ijme.2023.100859.

European Institute for Gender Equality (2025) GENDER EQUALITY INDEX 2025 Sharper data for a changing world, https://eige.europa.eu/sites/default/files/documents/gender-equality-index-2025-sharper-data-for-a-changing-world.pdf.

Evan, R.J., Sisco, S., Fashant, C.S., Nandyal, N. and Robbins, S. (2023) "White DEI professionals' perception of their contribution to advancing workplace diversity, equity and inclusion: leveraging and decentering whiteness", Equality, Diversity and Inclusion: An International Journal. https://doi.org/10.1108/edi-06-2022-0161.

Faragalla, W.A., Tiron-Tudor, A., Stanca, L. and Deliu, D. (2023) "Gender Discrimination Insights in Romanian Accounting Organisations", International Journal of Environmental Research and Public Health, Vol. 20, No. 1, 797. https://doi.org/10.3390/ijerph20010797.

Fota, M.S., Cristea, N.E., Ureche, A. and Albu, N. (2024) "Accountants' competencies for sustainability reporting: An exploratory study", Journal of Accounting and Management Information Systems, Vol. 23, No. 2. https://doi.org/10.24818/jamis.2024.02007.

Powell, L., Ghio, A. and McGuigan, N. (2024) "Nurturing diversity in accounting through "Queering" accounting pedagogy", The British Accounting Review, 101516. https://doi.org/10.1016/j.bar.2024.101516.

PwC (2026) Bridging the gap: Where data meets action Year 9 UK gender pay gap reporting 2025/26June 2026 https://www.pwc.co.uk/human-resource-services/assets/pdfs/year-9-gender-pay-gap-report-2025-2026.pdf.

Rabl, T., del Carmen Triana, M., Byun, S.Y. and Bosch, L. (2020) "Diversity Management Efforts as an Ethical Responsibility: How Employees' Perceptions of an Organizational Integration and Learning Approach to Diversity Affect Employee Behavior", Journal of Business Ethics, Vol.161: 531–550 https://doi.org/10.1007/s10551-018-3849-7.

Sadiq, M., Leong, M.K., Jiayao, Z. and Siddiqui, K. (2025) "The Effect of Perceived Firm Diversity, Equity and Inclusion (DEI) on Employee Wellbeing and Green Performance: A Moderated Mediated Model", Corporate Social Responsibility and Environmental Management. https://doi.org/10.1002/csr.70186.

Showkat, M. and Yahya, A.T. (2025) "The backlash effect: how diversity, equity, and inclusion programs influence employee engagement and organizational commitment", Cogent Business & Management, Vol.12, No.1, 2598192, https://doi.org/10.1080/23311975.2025.2598192.

Yadav, N., Tanwar, S. and Gupta, S. (2026) "Exploring the nexus between perceived organizational diversity and cooperative performance: the mediating role of employee engagement", Organization Management Journal, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/OMJ-04-2025-2541.

Appendix 1: List of Variables

Code of construct	Items included in the questionnaire
Dependent variables	
API_DEI	The extent to which DEI initiatives will impact the future of the accounting profession.
ESG_DEI	Organizations with diverse accounting teams perform better on ESG requirements.
AE_DEI	Accounting education addresses DEI topics sufficiently.
Institutional factors	
DEI_Importance	Diversity, equity, and inclusion are important values in the accounting profession.
DEI_ProfessionalJudgement	A diverse workforce improves professional judgment in accounting.
DEI_EthicalDecision	DEI initiatives in accounting firms enhance ethical decision-making.
DEI_PoliciesPreference	I would prefer to work for an organization with strong DEI policies.
DEI_ReportingQuality	DEI considerations improve corporate sustainability reporting quality.
DEI_EquitableOpportunities	Mentoring and networking opportunities are equally accessible.
DEI_Discrimination	I have observed/experienced discrimination in academic/professional accounting settings.
DEI_GenderEquityLeadership	Gender equality in leadership positions is adequately achieved in the accounting profession.
DEI_Promotion	Employers tend to show gender preference in hiring or promotion decisions.
DEI_Reward	Employers tend to show gender preference in reward or compensation decisions.
DEI_Opportunities	There are more professional development opportunities available to men than to women.
DEI_TopManagementPosition	Top-management positions are equally accessible to all individuals, regardless of gender.
Individual characteristics	
StudyLevel	Level of your current study program at university? (Undergraduates / Master / PhD)
Age	Intervals (18-24 / 25-30 / Over 30 years)
Gender	Male / Female
AccountingExperienceLevel	Please state to what extent you have had any engagement with accounting practice

Appendix 2: Multi Item Measurement for the Studied Constructs

Variable	Factor1 *Ethical awareness*	Factor2 *Professional development*	Factor3 *Organizational inclusiveness*
API_DEI	0.343	0.0719	-0.384
AE_DEI	0.436	0.329	0.558
ESG_DEI	0.405	0.398	0.455
DEI_Importance	**0.835**	0.309	0.110
DEI_PoliciesPreference	**0.856**	0.166	0.128
DEI_ProfessionalJudgement	**0.833**	0.244	0.117
DEI_EthicalDecision	**0.884**	0.199	0.059
DEI_ReportingQuality	**0.823**	0.217	0.283
DEI_EquitableOpportunities	0.132	0.123	**0.840**
DEI_Promotion	0.229	**0.882**	0.094
DEI_Reward	0.261	**0.860**	0.052
DEI_Opportunities	0.353	**0.826**	0.076
DEI_GenderEquityLeadership	0.213	0.091	**0.814**
DEI_TopManagementPosition	0.082	0.095	**0.836**
DEI_Discrination	0.095	**0.819**	0.225

The Leadership Personality Evolution Model: Psychosocial Foundations of Leadership Orientation

Michael Ofosu Faakye
Southshore University College (affiliated with the University of Cape Coast), Ghana

m.o.faakye@gmail.com

Abstract: Leadership research has shown that leaders' personality is associated with effectiveness, derailment and the wellbeing of followers, yet it explains much less about how a leader's functional or dysfunctional orientation develops. This PhD paper presents the Leadership Personality Evolution Model (LPEM), a developmental framework proposing that leadership orientation is shaped by how leaders resolve six recurring leadership-domain psychosocial tensions: foresight, agency, competence, emotional regulation, decisiveness and adaptability. Drawing on Erikson's psychosocial theory, research on the bright and dark sides of leadership personality, and lifespan leader-development scholarship, the paper argues that the resolution of each tension is expressed as a leadership virtue and its non-resolution as a corresponding vice, and that these cluster into functional and dysfunctional orientations. The model is examined through a five-phase exploratory sequential mixed-methods design across organisational settings in Ghana and the United States: directed psychobiographical analysis of six historical leaders; Interpretative Phenomenological Analysis with 10 to 12 Ghanaian leaders; development and pilot testing of the leader-reported Psychosocial Conflict Resolution Scale (PCRS) and the subordinate-reported Leadership Personality Orientation Scale (LPOS); a leader–subordinate dyadic survey; and joint-display integration. Structural equation modelling and multigroup analysis will test whether PCRS profiles are associated with subordinate-rated orientation and whether the measures operate comparably in the two countries. Because the empirical phases are in progress, the paper reports the results of the conceptual synthesis: six defined tensions mapped to Erikson's adult stages, a testable model in which leaders and subordinates provide separate ratings, two hypotheses and one proposition, together with the selection rationale for each research site and case. It contributes a developmental and relational explanation of leadership orientation, a design that treats the transfer of Western theory to African settings as an empirical question, and a foundation for developmental coaching, mentoring and succession planning rather than employee selection or clinical diagnosis.

Keywords: Leadership development, Leadership personality, Psychosocial development, Destructive leadership, Mixed methods, Ghana

1. Introduction

Gallup (2023) estimates that low employee engagement costs the global economy about US$8.8 trillion a year and identifies managers as a central influence on engagement. Meta-analytic evidence shows that destructive leadership is consistently associated with lower follower wellbeing, satisfaction and performance (Schyns and Schilling, 2013), and that abusive supervision is linked to a wide range of negative employee outcomes (Mackey et al., 2017).

What is less well understood is where a leader's characteristic way of leading comes from. The personality–leadership literature largely treats personality as a stable input that predicts leadership emergence and success (Judge et al., 2002). Leader-development scholarship, by contrast, describes leadership as formed through experience across the lifespan (Day et al., 2014; Liu et al., 2021), and personality research shows that traits change in adulthood, partly in response to work and life events (Roberts, Walton and Viechtbauer, 2006; Bleidorn, Hopwood and Lucas, 2018). These literatures have not yet been connected in a model explaining how repeated leadership experiences consolidate into a functional or dysfunctional orientation.

This paper argues that the missing connection lies in the way leaders resolve recurring psychosocial tensions that are specific to the leadership role. The argument grew out of the author's work with leaders in Ghanaian public and civil-society organisations, where leaders with similar training often behaved very differently under pressure. The paper presents the problem, aims, literature, the Leadership Personality Evolution Model (LPEM) and the methodology for testing it in Ghana and the United States, followed by the results of the conceptual synthesis, discussion, limitations and next steps.

2. Statement of the Problem

Organisations usually detect leadership dysfunction once it is visible, through engagement surveys, 360-degree feedback or turnover, and development programmes then target the behaviour; many fail to produce lasting change (Beer, Finnström and Schrader, 2016), plausibly because they address the expression of dysfunction rather than its origin. Three related gaps follow.

First, there is a theoretical gap. Trait and dark-side models describe which dispositions accompany effective or destructive leadership (Hogan and Hogan, 2001; Kaiser, Hogan and Craig, 2008) but do not specify how those dispositions form in the leadership role. Second, there is a methodological gap: much of the evidence relies on single-source, single-time self-reports, which inflate relationships through common-method variance (Podsakoff et al., 2003). Third, there is a contextual gap. Leadership theory has been developed mainly in North American and European samples, and scholars caution against assuming it transfers unchanged to African organisations (Nkomo, 2011; Zoogah, Peng and Woldu, 2015). The field therefore lacks a developmental, relationally measured and contextually tested account of how leadership orientation forms. This study addresses that combined problem.

3. Aim, Objectives and Research Questions

The aim of the study is to develop the LPEM and to conduct an initial cross-context examination of whether leaders' resolution of six leadership-domain psychosocial tensions is associated with subordinate-rated functional and dysfunctional leadership orientation in organisational settings in Ghana and the United States. The objectives are:

- O1: To explain, from existing theory, how six leadership-domain psychosocial tensions may give rise to leadership virtues and vices.
- O2: To understand how Ghanaian leaders experience, interpret and resolve these tensions in their own leadership careers.
- O3: To establish whether the PCRS and LPOS provide reliable and valid measurement of conflict resolution and leadership orientation.
- O4: To determine whether conflict-resolution profiles are associated with subordinate-rated leadership orientation, and whether this association is comparable in Ghana and the United States.

These objectives lead to four research questions. RQ1: How can the six tensions be defined so that they are theoretically distinct and grounded in existing scholarship? RQ2: How do Ghanaian leaders describe the meaning and resolution of these tensions? RQ3: Do the PCRS and LPOS show adequate reliability, content validity and factor structure? RQ4: To what extent are leaders' PCRS scores associated with subordinates' LPOS ratings, and do the measures and associations operate comparably across the two countries? RQ4 is tested through two hypotheses. H1: higher PCRS scores will be positively associated with subordinate-rated functional orientation. H2: higher PCRS scores will be negatively associated with subordinate-rated dysfunctional orientation. Because the link from orientation to organisational citizenship behaviour (OCB) and counterproductive work behaviour (CWB) is already established (Organ, 1988; Robinson and Bennett, 1995), it is retained as an exploratory proposition (P1).

4. Literature Review

4.1 Leadership Personality: The Bright and Dark Sides

Research on leadership personality defines what the LPEM seeks to explain. Judge et al. (2002) found that the Big Five traits had a multiple correlation of .48 with leadership emergence and .39 with effectiveness. Traits also appear to be integrated at a higher level: a General Factor of Personality (GFP) emerges across the Big Five (Musek, 2007; van der Linden, te Nijenhuis and Bakker, 2010), and high-GFP leaders are rated by subordinates as more effective and less abusive (Wu et al., 2021). The dark-side tradition adds that derailment-prone dispositions, such as volatility and excessive control, are distinct from low levels of positive traits and tend to appear under pressure (Hogan and Hogan, 2001; Kaiser, Hogan and Craig, 2008; Hogan et al., 2021).

This literature shows that leadership orientation is coherent, measurable and consequential. Its limitation is that it is largely descriptive: it shows what functional and dysfunctional orientations look like, not how a leader came to have one.

4.2 Leadership as Development across the Lifespan

A second body of work treats leadership as developed rather than given. Day et al. (2014) show that leader development is a longitudinal process shaped by experience, feedback and identity, and Liu et al. (2021) argue that experiences across the lifespan and in multiple contexts accumulate into leadership capacity. Learning agility describes leaders' ability to extract lessons from experience (DeRue, Ashford and Myers, 2012). Personality research supports this view: conscientiousness and emotional stability rise through adulthood

(Roberts, Walton and Viechtbauer, 2006), and major life and work events can change traits (Bleidorn, Hopwood and Lucas, 2018).

This literature establishes that leaders develop, but it rarely specifies which recurring experiences matter or how their outcomes become stable dispositions. The LPEM addresses this by proposing a limited set of role-specific tensions and a resolution mechanism.

4.3 Erikson's Psychosocial Theory in Adult and Work Settings

Erikson (1950, 1968) proposed that development proceeds through a series of psychosocial conflicts, each of which, when resolved, leaves an enduring ego strength and, when unresolved, a corresponding vulnerability. His adult stages of identity, intimacy, generativity and integrity are particularly relevant to leadership, which involves self-definition, relationships, responsibility for others and judgement. Vaillant's (1977) longitudinal study showed that adult psychosocial maturity predicted later occupational functioning, and leader generativity has been linked to leadership success (Zacher et al., 2011).

Erikson's theory has two weaknesses for this study: its stages are tied to age, and it was formulated mainly in Western settings. The LPEM therefore adopts Erikson's mechanism of conflict and resolution, not his age sequence. It treats sustained exposure to leadership responsibility, rather than chronological age, as the condition under which the tensions arise, and it treats cultural transferability as something to be examined empirically.

4.4 Leadership in Ghanaian and United States Contexts

Cross-cultural research shows that the attributes associated with effective leadership vary across societies, although some are widely endorsed (House et al., 2004). African management scholars have criticised portrayals of African leadership as either deficient or exotic (Nkomo, 2011) and call for research on African institutions and resources on their own terms (Zoogah, Peng and Woldu, 2015). Ghanaian research documents mixed transformational and transactional patterns and the need for contextually informed models (Dartey-Baah, 2015). The United States, by contrast, is where much leadership-personality theory was developed and tested.

Comparing the two settings is not a ranking exercise; it asks whether a mechanism derived largely from Western theory, but grounded in Ghanaian experience, operates comparably in both.

4.5 Synthesis of the Literature

In sum, leadership orientation is well described, leadership and personality develop in adulthood, and Erikson offers a plausible mechanism, but these strands have not been combined or tested across contrasting contexts. The LPEM is proposed as that integration.

5. Theoretical and Conceptual Framework

The LPEM rests on one developmental claim: leaders repeatedly face six tensions intrinsic to the leadership role, and the way each is habitually resolved becomes a stable leadership disposition. Resolution produces a leadership virtue; persistent non-resolution produces a corresponding vice. Each tension is mapped to an Eriksonian adult stage: competence to identity, emotional regulation to intimacy and decisiveness to integrity. Generativity, which concerns responsibility for others and for collective outcomes, is the stage most closely aligned with leadership and is therefore divided into three tensions: foresight, agency and adaptability. This mapping is a theoretical proposition, not an established finding, and the qualitative phases are designed to test it. Table 1 defines the six tensions. Each pole is drawn from established literature, supporting content validity (Messick, 1995): the LPEM organises known virtues and vices around one developmental mechanism rather than inventing new traits.

Table 1: The six LPEM leadership-domain psychosocial tensions

Tension	Erikson anchor	Virtue (resolved)	Vice (unresolved)	Key sources
Visionary Foresight vs Reactive Drift	Generativity	Strategic vision	Short-termism	Boal and Hooijberg (2000); Kouzes and Posner (2017)
Purposive Agency vs Learned Helplessness	Generativity	Proactive ownership	Blame dependency	Bandura (1997); Seligman (1975)

Tension	Erikson anchor	Virtue (resolved)	Vice (unresolved)	Key sources
Competence Confidence vs Chronic Inadequacy	Identity	Developmental mastery	Controlling insecurity	Judge et al. (2003); Hogan and Hogan (2001)
Emotional Mastery vs Affective Dysregulation	Intimacy	Relational composure	Volatile toxicity	Goleman (1995); Gross and John (2003)
Decisive Clarity vs Chronic Ambivalence	Integrity	Judicious resolution	Paralytic indecision	Simon (1955); Mann et al. (1997)
Adaptive Flexibility vs Rigid Entrenchment	Generativity	Learning agility	Stagnant rigidity	DeRue, Ashford and Myers (2012); Hogan and Hogan (2001)

Source: Author's synthesis of the literature cited in the table, with Erikson anchors based on Erikson (1950, 1968).

Consistent with GFP research (Musek, 2007) and evidence that dark-side tendencies cluster (Kaiser, Hogan and Craig, 2008), the six virtues are expected to form a functional orientation and the six vices a dysfunctional one. These are treated as separate factors, because a leader may resolve some tensions and not others.

Figure 1 presents the conceptual model that the empirical study will test. The independent variable is the leader's conflict-resolution profile, measured by the PCRS. The dependent variable is leadership orientation as observed by a subordinate, measured by the LPOS. Organisational outcomes are dashed because they form a proposition; country is the context for multigroup comparison. The methods are explained in Section 6.

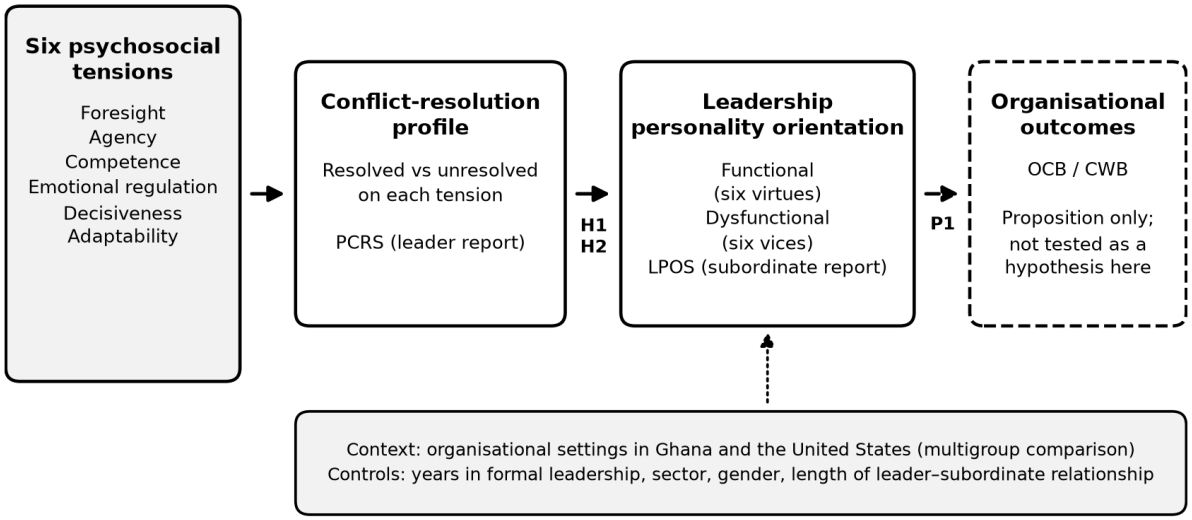


Figure 1: Conceptual model of the Leadership Personality Evolution Model (LPEM)

Source: Author's conceptualisation, informed by Erikson (1950, 1968), Judge et al. (2002), Organ (1988) and Robinson and Bennett (1995). PCRS = Psychosocial Conflict Resolution Scale; LPOS = Leadership Personality Orientation Scale; OCB = organisational citizenship behaviour; CWB = counterproductive work behaviour.

6. Methodology

6.1 Research Philosophy and Design

The study adopts a pragmatist stance and uses a five-phase exploratory sequential mixed-methods design (Creswell and Plano Clark, 2018). This sequence is appropriate because the constructs and instruments do not yet exist in validated form, so qualitative work must define and contextualise the tensions before they are measured. Table 2 summarises the phases; each is explained below.

Table 2: Research design and analytic purpose of each phase

Phase	Data source and sample	Technique	Output
1. Psychobiography	Published sources on six historical leaders	Directed (deductive) coding against Table 1	Refined definitions; indicative item language
2. IPA	10–12 Ghanaian leaders, 3+ years in a formal leadership role	Semi-structured interviews; IPA	Culturally grounded themes and item wording
3. Instrument development	Expert panel; cognitive interviews in both countries; pilot of 30–50 leaders	Content validity review; reliability and item analysis	Pilot-tested PCRS and LPOS
4. Dyadic survey	Target of about 200 leader–subordinate dyads per country	CFA; SEM; measurement invariance	Tests of H1 and H2; exploratory test of P1
5. Integration	Outputs of Phases 1–4	Joint display	Revised LPEM specification

Source: Author's research design, based on Creswell and Plano Clark (2018).

6.2 Entity under Study and Research Focus

The unit of analysis is the individual leader who has held a formal leadership role for at least three years, observed through his or her relationship with a direct subordinate. The three-year threshold follows from the age-decoupling argument in Section 4.3: it ensures sustained exposure to the leadership tensions. The research focus is the association between how leaders resolve these tensions and how their leadership is experienced by others.

In Ghana, the planned sites are the Ghana Education Service, the University of Energy and Natural Resources, World Vision Ghana, the Parliament of Ghana and the Ghana National Theatre. They differ in authority structure, mandate and accountability (bureaucratic, collegial, mission-driven, political and creative), allowing the mechanism to be examined across varied leadership settings. In the United States, the planned sites are the Elk Grove Unified School District and the Elk Grove Community Services District in California, which offer public education and community-service settings comparable to the Ghanaian public and educational sites. Participation is subject to institutional permission.

6.3 Phase 1: Directed Psychobiographical Analysis

Phase 1 examines published biographical and scholarly sources on six historical leaders: Martin Luther and Mahatma Gandhi (Erikson's own psychobiographical subjects, giving methodological continuity with Erikson, 1958, 1969), Nelson Mandela, Winston Churchill, Steve Jobs and Kwame Nkrumah. They were selected because each has an extensive scholarly biographical record and together they cover functional, dysfunctional and mixed trajectories across eras, sectors and regions, including Ghana. Sources will be coded deductively against the definitions in Table 1, following recognised good practice in psychobiography: using multiple independent sources, avoiding retrospective clinical diagnosis and documenting interpretive decisions (Ponterotto, 2014). The output is a refined set of definitions and indicative item language.

6.4 Phase 2: Interpretative Phenomenological Analysis

Phase 2 uses Interpretative Phenomenological Analysis (IPA) because the tensions are lived experiences whose meaning must be understood from the leader's perspective (Smith, Flowers and Larkin, 2022). Ten to twelve Ghanaian leaders will be purposively selected across the five sites and interviewed for 60 to 90 minutes about critical leadership episodes and their responses. This sample suits IPA's idiographic depth and the high information power of a focused aim and specialist participants (Malterud, Siersma and Guassora, 2016). Rigour will be supported by a reflexive journal and an audit trail. The phase is located in Ghana because the transfer of Western constructs is least tested there; the lack of a parallel United States qualitative phase is a limitation.

6.5 Phase 3: Instrument Development and Pilot Testing

The PCRS is a leader self-report scale of about 30 to 36 items in six subscales. Items will be adapted from established measures: the General Self-Efficacy Scale for agency (Schwarzer and Jerusalem, 1995), the Core Self-Evaluations Scale for competence (Judge et al., 2003), the Emotion Regulation Questionnaire (Gross and John, 2003) and the Melbourne Decision Making Questionnaire for decisiveness (Mann et al., 1997). Foresight and adaptability items will be written from strategic-leadership and learning-agility scholarship (Boal and Hooijberg, 2000; DeRue, Ashford and Myers, 2012) and Phase 1 and 2 language. The LPOS is a 12-item subordinate-report scale with functional and dysfunctional subscales based on Table 1.

Development will follow established steps (Hinkin, 1998): item generation, expert review of content validity, cognitive interviews with leaders in both countries to check meaning, and a pilot with 30 to 50 leaders (Johanson and Brooks, 2010). Items will be retained where subscale reliability reaches at least .70 and item-total correlations are adequate. Pilot factor results will be treated as preliminary.

6.6 Phase 4: Dyadic Survey and Analysis

In Phase 4, each leader completes the PCRS and one direct subordinate independently completes the LPOS. A separate rater for the dependent variable reduces common-method and social-desirability bias, which is likely to be strongest among leaders with dysfunctional tendencies (Podsakoff et al., 2003). Where organisations allow, the subordinate will be randomly selected from the leader's direct reports rather than nominated, and responses will never be shared with the leader. The target is about 200 dyads per country; if the United States sample is smaller, the cross-country analysis will be reported as exploratory.

Analysis will follow a two-step approach (Anderson and Gerbing, 1988). Confirmatory factor analysis will assess the measurement model, including convergent and discriminant validity. Structural equation modelling in IBM SPSS Amos will then test H1 and H2, controlling for years in leadership, sector, gender and length of the leader–subordinate relationship. Fit will be judged against CFI of at least .90, RMSEA of no more than .08 and SRMR of no more than .08 (Kline, 2023). Before comparing paths across countries, configural, metric and scalar measurement invariance will be tested (Putnick and Bornstein, 2016).

6.7 Phase 5: Integration

Phase 5 uses a joint display that sets qualitative themes, instrument decisions and quantitative results side by side to identify convergence, divergence and needed model revisions (Fetters, Curry and Creswell, 2013).

7. Results of the Conceptual Synthesis and Anticipated Findings

No empirical findings are reported yet; fieldwork will begin after ethical approval and site permission. The results reported here are those of the theoretical synthesis, which (1) identifies six leadership-domain tensions with defined poles grounded in existing scholarship (Table 1); (2) specifies an Eriksonian mapping that decomposes generativity into three leadership-specific tensions and separates Erikson's mechanism from his age sequence; (3) produces a testable model (Figure 1) in which predictor and outcome are rated by different people, avoiding circularity; and (4) yields two hypotheses and one proposition.

If H1 and H2 are supported, leaders with higher conflict-resolution scores will be rated by subordinates as more functional and less dysfunctional. Invariance testing will show whether this holds in both countries, and the IPA phase may show culturally specific expressions of the tensions, for example through expectations of deference or communal responsibility.

8. Discussion

The LPEM complements rather than replaces trait models: trait research explains which dispositions matter (Judge et al., 2002; Hogan et al., 2021), while the LPEM proposes how they form. It also gives lifespan leader-development theory (Liu et al., 2021) a specific, measurable mechanism, and departs from Erikson by treating the leadership role, rather than age, as the developmental trigger.

A key risk is that the six virtues and vices might simply relabel existing traits. The design responds by measuring resolution and orientation separately, testing discriminant validity, and using qualitative evidence to check whether leaders experience the tensions as developmental struggles rather than fixed traits. For practice and governance, the model is intended to support coaching, mentoring and succession planning by identifying tensions a leader has yet to resolve, not employee selection or clinical diagnosis.

9. Limitations

The study has several limitations. The dyadic survey is cross-sectional, so it can show association but not developmental causation. PCRS responses rely on self-perception, and psychobiographical interpretation is necessarily interpretive. The Eriksonian mapping is conceptual and may be revised. A single subordinate may not represent a leader's whole team. Comparisons apply to the participating organisations, not to Ghanaian or American national culture. Neuropsychological variables from earlier versions were removed because they are not measured.

10. Conclusion and Next Steps

Leadership research describes functional and dysfunctional orientations well but explains their formation poorly. The LPEM proposes that orientation develops through the habitual resolution of six leadership-domain psychosocial tensions, and sets out a mixed-methods design to examine this claim in Ghana and the United States. The next steps are to obtain ethical approval and site permissions, complete Phases 1 and 2, pilot the PCRS and LPOS, and conduct the dyadic survey, using colloquium feedback to refine the design.

Acknowledgements

The author thanks his supervisors, Professor Nkrumah and Dr Lilian, for their guidance on this research.

Ethics Declaration: This paper reports a proposed design and a theoretical synthesis; no data from human participants are reported. Phase 1 uses only published sources about historical public figures. Ethical approval and organisational permission will be obtained before any interviews, pilot testing or survey data collection. Participants will give informed consent, and data will be anonymised and stored in line with institutional and data-protection requirements in Ghana and the United States.

AI Declaration: Generative AI was used to assist with restructuring the manuscript after review and with language editing. The research problem, argument, model, design and interpretation are the author's own, derived from his doctoral work. The author reviewed and revised all text, checked all citations against the original sources, and takes full responsibility for the content.

References

Anderson, J.C. and Gerbing, D.W. (1988) “Structural equation modeling in practice: A review and recommended two-step approach”, *Psychological Bulletin*, Vol. 103, No. 3, pp 411–423.

Bandura, A. (1997) *Self-Efficacy: The Exercise of Control*, W.H. Freeman, New York.

Beer, M., Finnström, M. and Schrader, D. (2016) “Why leadership training fails – and what to do about it”, *Harvard Business Review*, Vol. 94, No. 10, pp 50–57.

Bleidorn, W., Hopwood, C.J. and Lucas, R.E. (2018) “Life events and personality trait change”, *Journal of Personality*, Vol. 86, No. 1, pp 83–96.

Boal, K.B. and Hooijberg, R. (2000) “Strategic leadership research: Moving on”, *The Leadership Quarterly*, Vol. 11, No. 4, pp 515–549.

Creswell, J.W. and Plano Clark, V.L. (2018) *Designing and Conducting Mixed Methods Research*, 3rd ed., Sage, Thousand Oaks.

Dartey-Baah, K. (2015) “Resilient leadership: A transformational-transactional leadership mix”, *Journal of Global Responsibility*, Vol. 6, No. 1, pp 99–112.

Day, D.V., Fleenor, J.W., Atwater, L.E., Sturm, R.E. and McKee, R.A. (2014) “Advances in leader and leadership development: A review of 25 years of research and theory”, *The Leadership Quarterly*, Vol. 25, No. 1, pp 63–82.

DeRue, D.S., Ashford, S.J. and Myers, C.G. (2012) “Learning agility: In search of conceptual clarity and theoretical grounding”, *Industrial and Organizational Psychology*, Vol. 5, No. 3, pp 258–279.

Erikson, E.H. (1950) *Childhood and Society*, Norton, New York.

Erikson, E.H. (1958) *Young Man Luther: A Study in Psychoanalysis and History*, Norton, New York.

Erikson, E.H. (1968) *Identity: Youth and Crisis*, Norton, New York.

Erikson, E.H. (1969) *Gandhi's Truth: On the Origins of Militant Nonviolence*, Norton, New York.

Fetters, M.D., Curry, L.A. and Creswell, J.W. (2013) “Achieving integration in mixed methods designs: Principles and practices”, *Health Services Research*, Vol. 48, No. 6, pp 2134–2156.

Gallup (2023) *State of the Global Workplace: 2023 Report*, Gallup, Washington DC.

Goleman, D. (1995) *Emotional Intelligence: Why It Can Matter More Than IQ*, Bantam Books, New York.

Gross, J.J. and John, O.P. (2003) “Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being”, *Journal of Personality and Social Psychology*, Vol. 85, No. 2, pp 348–362.

Hinkin, T.R. (1998) “A brief tutorial on the development of measures for use in survey questionnaires”, *Organizational Research Methods*, Vol. 1, No. 1, pp 104–121.

Hogan, R. and Hogan, J. (2001) “Assessing leadership: A view from the dark side”, *International Journal of Selection and Assessment*, Vol. 9, No. 1–2, pp 40–51.

Hogan, R., Kaiser, R.B., Sherman, R.A. and Harms, P.D. (2021) “Twenty years on the dark side: Six lessons about bad leadership”, *Consulting Psychology Journal: Practice and Research*, Vol. 73, No. 3, pp 199–213.

House, R.J., Hanges, P.J., Javidan, M., Dorfman, P.W. and Gupta, V. (eds) (2004) *Culture, Leadership, and Organizations: The GLOBE Study of 62 Societies*, Sage, Thousand Oaks.

Johanson, G.A. and Brooks, G.P. (2010) “Initial scale development: Sample size for pilot studies”, *Educational and Psychological Measurement*, Vol. 70, No. 3, pp 394–400.

Judge, T.A., Bono, J.E., Ilies, R. and Gerhardt, M.W. (2002) "Personality and leadership: A qualitative and quantitative review", *Journal of Applied Psychology*, Vol. 87, No. 4, pp 765–780.

Judge, T.A., Erez, A., Bono, J.E. and Thoresen, C.J. (2003) "The core self-evaluations scale: Development of a measure", *Personnel Psychology*, Vol. 56, No. 2, pp 303–331.

Kaiser, R.B., Hogan, R. and Craig, S.B. (2008) "Leadership and the fate of organizations", *American Psychologist*, Vol. 63, No. 2, pp 96–110.

Kline, R.B. (2023) *Principles and Practice of Structural Equation Modeling*, 5th ed., Guilford Press, New York.

Kouzes, J.M. and Posner, B.Z. (2017) *The Leadership Challenge*, 6th ed., Wiley, Hoboken.

Liu, Z., Venkatesh, S., Murphy, S.E. and Riggio, R.E. (2021) "Leader development across the lifespan: A dynamic experiences-grounded approach", *The Leadership Quarterly*, Vol. 32, No. 5, 101382.

Mackey, J.D., Frieder, R.E., Brees, J.R. and Martinko, M.J. (2017) "Abusive supervision: A meta-analysis and empirical review", *Journal of Management*, Vol. 43, No. 6, pp 1940–1965.

Malterud, K., Siersma, V.D. and Guassora, A.D. (2016) "Sample size in qualitative interview studies: Guided by information power", *Qualitative Health Research*, Vol. 26, No. 13, pp 1753–1760.

Mann, L., Burnett, P., Radford, M. and Ford, S. (1997) "The Melbourne Decision Making Questionnaire: An instrument for measuring patterns for coping with decisional conflict", *Journal of Behavioral Decision Making*, Vol. 10, No. 1, pp 1–19.

Messick, S. (1995) "Validity of psychological assessment", *American Psychologist*, Vol. 50, No. 9, pp 741–749.

Musek, J. (2007) "A general factor of personality: Evidence for the Big One in the five-factor model", *Journal of Research in Personality*, Vol. 41, No. 6, pp 1213–1233.

Nkomo, S.M. (2011) "A postcolonial and anti-colonial reading of 'African' leadership and management in organization studies: Tensions, contradictions and possibilities", *Organization*, Vol. 18, No. 3, pp 365–386.

Organ, D.W. (1988) *Organizational Citizenship Behavior: The Good Soldier Syndrome*, Lexington Books, Lexington.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. and Podsakoff, N.P. (2003) "Common method biases in behavioral research: A critical review of the literature and recommended remedies", *Journal of Applied Psychology*, Vol. 88, No. 5, pp 879–903.

Ponterotto, J.G. (2014) "Best practices in psychobiographical research", *Qualitative Psychology*, Vol. 1, No. 1, pp 77–90.

Putnick, D.L. and Bornstein, M.H. (2016) "Measurement invariance conventions and reporting: The state of the art and future directions for psychological research", *Developmental Review*, Vol. 41, pp 71–90.

Roberts, B.W., Walton, K.E. and Viechtbauer, W. (2006) "Patterns of mean-level change in personality traits across the life course: A meta-analysis of longitudinal studies", *Psychological Bulletin*, Vol. 132, No. 1, pp 1–25.

Robinson, S.L. and Bennett, R.J. (1995) "A typology of deviant workplace behaviors: A multidimensional scaling study", *Academy of Management Journal*, Vol. 38, No. 2, pp 555–572.

Schwarzer, R. and Jerusalem, M. (1995) "Generalized Self-Efficacy Scale", in Weinman, J., Wright, S. and Johnston, M. (eds) *Measures in Health Psychology: A User's Portfolio*, NFER-Nelson, Windsor, pp 35–37.

Schyns, B. and Schilling, J. (2013) "How bad are the effects of bad leaders? A meta-analysis of destructive leadership and its outcomes", *The Leadership Quarterly*, Vol. 24, No. 1, pp 138–158.

Seligman, M.E.P. (1975) *Helplessness: On Depression, Development, and Death*, W.H. Freeman, San Francisco.

Simon, H.A. (1955) "A behavioral model of rational choice", *Quarterly Journal of Economics*, Vol. 69, No. 1, pp 99–118.

Smith, J.A., Flowers, P. and Larkin, M. (2022) *Interpretative Phenomenological Analysis: Theory, Method and Research*, 2nd ed., Sage, London.

Vaillant, G.E. (1977) *Adaptation to Life*, Little, Brown, Boston.

van der Linden, D., te Nijenhuis, J. and Bakker, A.B. (2010) "The general factor of personality: A meta-analysis of Big Five intercorrelations and a criterion-related validity study", *Journal of Research in Personality*, Vol. 44, No. 3, pp 315–327.

Wu, P., van der Linden, D., Dunkel, C.S., Ding, R., Li, J., Li, X., Harmon, A. and Born, M.Ph. (2021) "A meta-analysis on the general factor of personality and its relation with leadership outcomes: Evidence from mainland China", *Personality and Individual Differences*, Vol. 179, 110953.

Zacher, H., Rosing, K., Henning, T. and Frese, M. (2011) "Establishing the next generation at work: Leader generativity as a moderator of the relationships between leader age, leader–member exchange, and leadership success", *Psychology and Aging*, Vol. 26, No. 1, pp 241–252.

Zoogah, D.B., Peng, M.W. and Woldu, H. (2015) "Institutions, resources, and organizational effectiveness in Africa", *Academy of Management Perspectives*, Vol. 29, No. 1, pp 7–31.

Leadership Diversity, Governance Quality, and Responsible Innovation in European Industrial Firms: An Integrative Literature Review

Eva Klink and Michaela Kotková Stříteská
Faculty of Economics and Administration, University of Pardubice, Czech Republic

eva.klink@student.upce.cz

Abstract: The objective of this paper is to integrate fragmented research on leadership diversity, governance quality, and responsible innovation in European industrial firms and to explain the governance mechanisms through which different dimensions of leadership diversity may shape responsible innovation. Existing research has generated valuable insights into diversity and innovation, diversity and ESG-related disclosure, and governance and responsible innovation, but these streams remain insufficiently integrated and often rely on different conceptualisations, levels of analysis, and outcome measures. Accordingly, the review asks: how do specific dimensions of leadership diversity shape responsible innovation in European industrial firms, and through which governance mechanisms is this relationship enabled or constrained? To answer this question, the paper adopts an integrative review design suited to a fragmented field combining empirical, conceptual, and meta-analytic studies. Drawing on peer-reviewed literature indexed in Scopus and Web of Science, the review applies transparent selection criteria and synthesises the final corpus through a mechanism-based thematic analysis. The review identifies three recurring mechanisms across the literature: cognitive expansion, governance filtering and integration, and legitimacy signalling. It argues that leadership diversity does not influence responsible innovation in a direct or uniform way. Instead, its effects depend on which diversity dimensions are present, how governance structures and processes translate heterogeneous perspectives into accountable strategic decisions, and how strongly the European institutional context links innovation to legitimacy, disclosure, and sustainability expectations. The paper contributes an integrative conceptual framework that positions governance quality as the key translating mechanism between leadership diversity and responsible innovation and highlights implications for future empirical research.

Keywords: Leadership diversity, Governance quality, Responsible innovation, Integrative literature review, ESG, European industrial firms

1. Introduction

Responsible innovation has become an increasingly prominent concept in debates on sustainability, corporate accountability, and the governance of innovation, as scholars have argued that innovation should be evaluated not only in terms of economic performance but also in terms of its broader societal and environmental implications (Stilgoe et al., 2013; Scherer & Voegtlin, 2020). Firms are therefore no longer assessed solely according to their capacity to generate commercially successful innovations, but also according to whether innovation processes and outcomes are aligned with wider social, environmental, and stakeholder expectations (Scherer & Voegtlin, 2020). This shift is particularly salient in Europe, where regulatory developments in non-financial reporting and ESG disclosure have increased pressure on firms to connect innovation with transparency, accountability, and long-term legitimacy (Bigelli et al., 2023; Nicolò et al., 2021). Within this context, leadership diversity has attracted sustained attention in management, corporate governance, and innovation research. A growing body of literature suggests that heterogeneous boards and top management teams may broaden strategic search, enrich problem framing, and expose firms to more diverse knowledge bases and perspectives (Makkonen, 2022; Klarner et al., 2020). At the same time, empirical findings remain inconsistent. While some studies report positive relationships between leadership diversity and innovation, others show that the strength and direction of these effects depend on the type of diversity considered, the way innovation is operationalised, and the specific governance characteristics under examination (Makkonen, 2022; Sierra-Morán et al., 2024). These inconsistencies suggest that leadership diversity should not be treated as a universally beneficial attribute, but rather as a contingent organisational resource whose effects depend on governance arrangements and contextual conditions (Klarner et al., 2020; Zaman et al., 2023). A further challenge is that the relevant literature remains fragmented across several partially overlapping streams. One stream examines the relationship between leadership diversity and innovation outcomes, often focusing on board or top management team characteristics and their association with innovation performance (Makkonen, 2022; Sierra-Morán et al., 2024). A second stream explores how board diversity relates to ESG disclosure and broader sustainability-related governance outcomes, particularly in European firms operating under stronger non-financial reporting expectations (Nicolò et al., 2021; Gavana et al., 2024). A third stream conceptualises responsible innovation primarily as a governance challenge and examines how governance arrangements can support innovation that is socially and environmentally aligned (Scherer & Voegtlin, 2020; Farza & Omri, 2026).

However, these streams only rarely explain how specific dimensions of leadership diversity are translated into responsible innovation outcomes through governance-related mechanisms, particularly in the context of European industrial firms. As a result, the literature still lacks an integrated mechanism-based explanation of when and how leadership diversity contributes not merely to innovation output, but to innovation that is governed responsibly and aligned with broader accountability expectations. To address this gap, the paper asks the following research question: How do specific dimensions of leadership diversity shape responsible innovation in European industrial firms, and through which governance mechanisms is this relationship enabled or constrained? The paper contributes to the literature in three ways. First, it integrates fragmented but related literatures on leadership diversity, governance quality, ESG-related oversight, and responsible innovation. Second, it distinguishes among demographic, experiential, and cognitive diversity rather than treating leadership diversity as a homogeneous construct. Third, it develops an integrative conceptual framework, presented graphically in Figure 1, that positions governance quality as the key mechanism through which leadership diversity is translated into responsible innovation outcomes in the European context.

2. Theoretical Framework

2.1 Core Concepts and Analytical Distinctions

Leadership diversity is best understood as a multidimensional construct encompassing demographic, experiential, and cognitive diversity. Demographic diversity concerns characteristics such as gender, age, and nationality; experiential diversity reflects differences in expertise and experience shaped by career paths, professional backgrounds, and organisational exposure; and cognitive diversity captures variation in the mental models, interpretive frames, and problem-solving approaches through which leaders assess strategic issues (Makkonen, 2022; Wang et al., 2019). Because these dimensions may influence strategic interpretation, information processing, and innovation-related decision making through different pathways, treating them as interchangeable can obscure their distinct effects and help explain why findings across studies are often mixed or contingent (Makkonen, 2022; Sierra-Morán et al., 2024). Recent research further suggests that innovation outcomes depend not only on whether leadership groups are diverse, but also on which board attributes are diverse and how directors participate in strategy and innovation processes. Board characteristics such as independence, outsider representation, and meeting frequency show differentiated relationships with firm innovation, while board involvement in innovation depends on the mobilisation of expertise, the timing of engagement, and the formality of exchanges between directors and organisational members (Sierra-Morán et al., 2024; Klarner et al., 2020). Conceptual precision is therefore essential: treating all forms of diversity as equivalent obscures the mechanisms through which leadership diversity affects governance and innovation and helps explain why findings in this literature often remain mixed, context-dependent, and theoretically fragmented (Makkonen, 2022; Asensio-López et al., 2019; Bezemer et al., 2022). Responsible innovation is treated in this paper as a distinct outcome domain rather than as a synonym for innovation performance. It refers to innovation that is developed and governed in ways that remain attentive to broader social needs, environmental sustainability, stakeholder accountability, and reflexive forms of governance, rather than being assessed solely in terms of novelty, patenting intensity, or commercial success (Scherer & Voegtlin, 2020). This distinction matters because the surrounding literature often relies on adjacent but conceptually non-equivalent constructs, including environmental innovation, ESG disclosure, sustainability governance, and general innovation output. These adjacent streams are analytically relevant because they illuminate how leadership composition and governance arrangements shape environmental orientation, transparency, accountability, and innovation-related strategic choices (Shui et al., 2022; Bigelli et al., 2023; Nicolò et al., 2021; Zampone et al., 2024). However, they do not capture responsible innovation in its entirety and should therefore be treated as related evidence streams rather than direct substitutes for the focal outcome domain (Scherer & Voegtlin, 2020; Shui et al., 2022).

2.2 European Institutional Context and Analytical Boundaries

In this review, European industrial firms are defined as firms headquartered in a European country and operating in manufacturing, engineering, energy, technology, or other production-oriented industrial sectors. The term is used as an analytical category rather than as a uniform legal classification. The review also draws on international and cross-sectoral studies where they provide transferable evidence on the governance mechanisms linking leadership diversity and innovation. Studies that do not focus directly on European industrial firms are treated as supporting evidence and are not used to draw context-specific conclusions about this group of firms.The European setting is not treated in this paper merely as a geographical boundary, but as a theoretically relevant institutional context. European firms operate under comparatively strong sustainability regulation, non-financial

reporting requirements, and stakeholder expectations, which increase pressure to connect board composition, governance arrangements, and strategic decision making with transparency, accountability, and broader social legitimacy (Directive 2014/95/EU; Bigelli et al., 2023; Nicolò et al., 2021). Recent evidence further suggests that board diversity in European firms is closely linked to ESG disclosure and related governance outcomes, and that these relationships are shaped by contextual governance mechanisms such as board independence, cultural diversity, and sustainability-oriented board committees (Bigelli et al., 2023; Nicolò et al., 2021; Gavana et al., 2024; Zampone et al., 2024). The European context is therefore analytically important not only because it places stronger emphasis on accountability and disclosure, but also because it provides a setting in which diversity, governance quality, and innovation are more likely to be connected through formal institutional channels (Bigelli et al., 2023; Gavana et al., 2024). At the same time, the European context does not resolve the conceptual limitations within the underlying literature. In particular, studies differ in how they define leadership diversity, governance quality, innovation, environmental innovation, ESG disclosure, and responsible innovation. Consequently, evidence generated in a European regulatory and institutional setting cannot automatically be interpreted as direct evidence of responsible innovation. The European context may strengthen the institutional connection between diversity, governance, disclosure, and sustainability, but it does not make these constructs equivalent. The review therefore uses studies on ESG disclosure, eco-innovation, SDG reporting, and sustainability governance as adjacent evidence rather than as direct measures of responsible innovation (Scherer & Voegtlin, 2020; Shui et al., 2022).

2.3 Toward an Integrative Conceptual Framework

Taken together, the preceding conceptual distinctions suggest that leadership diversity, governance quality, and responsible innovation should not be analysed as separate or loosely connected themes, but as mutually interdependent elements of a broader governance process. The literature reviewed in this paper indicates that leadership diversity is most relevant when treated as a multidimensional input, governance quality as the mechanism through which heterogeneous perspectives are filtered and integrated, and responsible innovation as the focal outcome domain shaped by both organisational and institutional conditions (Makkonen, 2022; Klarner et al., 2020; Scherer & Voegtlin, 2020). At the same time, the European context adds an important institutional layer, as disclosure requirements, ESG expectations, and governance traditions influence how diversity is interpreted, how governance mechanisms operate, and how innovation becomes linked to accountability and legitimacy (Bigelli et al., 2023; Nicolò et al., 2021; Gavana et al., 2024). On this basis, the review develops an integrative conceptual framework that organises fragmented findings across the literature and clarifies the mechanisms through which leadership diversity may shape responsible innovation in European industrial firms.

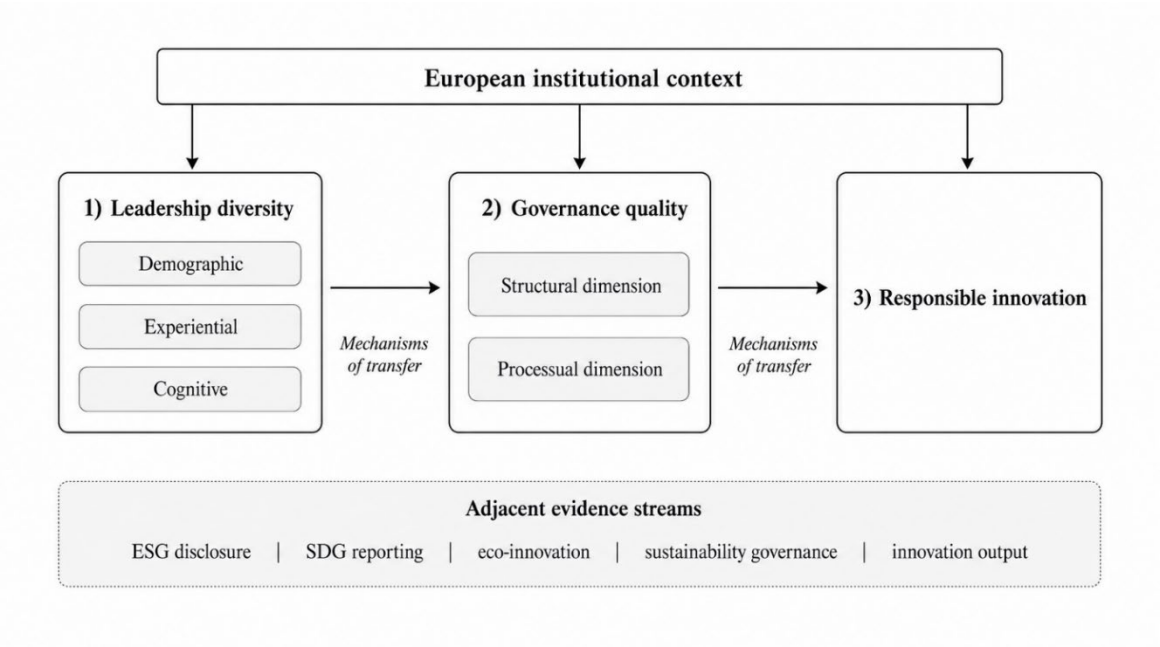


Figure 1: Integrative conceptual framework linking leadership diversity, governance quality, and responsible innovation in European industrial firms. Source: Author's integrative synthesis based on the reviewed literature

Figure 1 summarises the central argument of the review. Leadership diversity is treated as a multidimensional input, governance quality as the mechanism through which heterogeneous perspectives are filtered and integrated, and responsible innovation as the focal outcome domain. The European institutional context shapes how these relationships unfold, while adjacent evidence streams provide supporting insight without being treated as direct substitutes for responsible innovation.

3. Research Design and Review Methodology

3.1 Review Design, Objective and Scope

This paper adopts an integrative literature review design. The review is not presented as a systematic review or meta-analysis; its purpose is to integrate heterogeneous conceptual and empirical evidence and to develop a mechanism-based framework. Integrative reviews are particularly suitable for conceptually fragmented and interdisciplinary fields because they allow the combination of empirical and conceptual studies and support the development of new perspectives, frameworks, and future research agendas (Whittemore & Knafl, 2005; Torraco, 2016; Snyder, 2019). In particular, prior research has tended to examine either leadership diversity and innovation, diversity and ESG-related disclosure, or governance and responsible innovation, while offering only limited explanation of how these domains connect through common mechanisms (Makkonen, 2022; Sierra-Morán et al., 2024; Scherer & Voegtlin, 2020). The objective of the review is therefore not only to summarise prior studies, but to integrate evidence from research on leadership diversity, governance quality, ESG-related oversight, and responsible innovation into a coherent explanatory framework. The review focuses primarily on peer-reviewed journal articles indexed in Scopus and Web of Science and published between 2015 and 2025, while allowing the inclusion of a limited number of earlier foundational studies where these were conceptually necessary.

3.2 Search Strategy and Study Selection

The search strategy was designed to identify both the focal literature and adjacent evidence streams relevant to the research question. In line with recommendations for integrative literature reviews, the search process aimed to ensure transparency while remaining aligned with the explanatory purpose of the review rather than with the logic of statistical aggregation (Torraco, 2016; Snyder, 2019). Searches were conducted in Scopus and Web of Science using combinations of keywords related to leadership diversity, governance quality, responsible innovation, ESG disclosure, sustainability governance, eco-innovation, European firms, and industrial firms. Representative search strings included combinations such as “board diversity” AND “innovation” AND Europe, “corporate governance” AND “responsible innovation”, “gender diversity” AND “ESG disclosure” AND Europe, and “board structure” AND “eco-innovation”. The search strategy was intentionally broad enough to capture both directly relevant studies and adjacent literatures that could illuminate governance-related mechanisms and accountability-oriented innovation outcomes. Studies were included if they were peer-reviewed scholarly publications published in English and addressed at least two of the three focal domains of the review: leadership diversity, governance quality, and innovation or responsible innovation. Eligible studies included empirical articles, conceptual papers, review articles, and meta-analyses, if they offered conceptual clarification, explanatory insight, or evidence relevant to the research question. Studies were excluded if they focused exclusively on public-sector or non-corporate settings without transferability to firm governance, treated diversity solely as a workforce-wide HR issue without leadership or governance relevance, addressed innovation only in a highly technical sense unrelated to governance or sustainability, or consisted only of editorials, teaching cases, or non-scholarly commentary. This inclusion logic reflects the integrative review principle that heterogeneous forms of evidence may be combined when they contribute to a more comprehensive understanding of a conceptually fragmented phenomenon (Whittemore & Knafl, 2005; Torraco, 2016). Study selection followed a staged logic. First, database searches generated an initial pool of records using combinations of diversity-, governance-, innovation-, and Europe-related keywords. Second, duplicate records were removed. Third, titles and abstracts were screened for relevance to the focal constructs and research question. Fourth, full texts were assessed against the inclusion and exclusion criteria. Finally, the retained studies were reviewed for conceptual fit within the overall explanatory scope of the paper. Because the aim was integrative synthesis rather than statistical meta-analysis, study selection prioritised conceptual relevance and explanatory value alongside methodological quality. Particular attention was given to studies that clarified mechanisms, distinguished among diversity dimensions, connected governance to innovation-related outcomes, or provided evidence from European settings. The final review corpus consisted of 25 studies, several of which contributed to more than one line of evidence. Collectively, these studies provided the basis for the mechanism-based thematic synthesis developed in the findings section.

3.3 Review Corpus, Analytical Procedure and Limitations

The retained literature covered five overlapping streams: (1) leadership diversity and innovation; (2) top management team diversity and innovation output; (3) board structure and innovation governance; (4) diversity and ESG disclosure or sustainability governance; and (5) responsible innovation and corporate governance. This composition reflects the integrative logic of the review, as no single stream is sufficient on its own to explain how dimensions of leadership diversity may shape responsible innovation through governance-related mechanisms. The final corpus was analysed through a mechanism-based thematic synthesis. Coding focused on four analytical questions: which dimension of diversity is examined, at which level of analysis the study operates, what outcome is assessed, and which governance mechanism or contextual condition helps explain the relationship. Through iterative comparison across studies, three recurring analytical themes emerged: cognitive expansion, governance filtering and integration, and legitimacy signalling. These themes structure the findings section because they provide a more explanatory synthesis than a descriptive catalogue of articles. The review has several limitations. First, it is restricted to Scopus- and Web of Science-indexed publications and to English-language scholarship, which may have excluded relevant regional or non-indexed contributions. Second, it synthesises a conceptually heterogeneous body of literature in which diversity, governance, and innovation are defined and operationalised differently across studies. Third, the inclusion of adjacent evidence streams such as ESG disclosure, SDG disclosure, and eco-innovation broadens the explanatory base but also requires careful conceptual discipline. Finally, while the European focus increases contextual specificity, it also limits the direct generalisability of the review beyond the region.

Table 1: Review design and selection criteria

Review element	**Specification**
Review type	Integrative literature review
Objective	To explain how different dimensions of leadership diversity relate to responsible innovation through governance quality mechanisms
Databases	Scopus; Web of Science
Time frame	Primarily 2015–2025, with limited earlier foundational studies where conceptually necessary
Language	English
Core search domains	Leadership diversity; governance quality; responsible innovation; ESG disclosure; eco-innovation; innovation output
Inclusion logic	Peer-reviewed studies with conceptual or empirical relevance to at least two focal domains
Exclusion logic	Non-scholarly outputs; non-corporate settings without transferability; studies lacking leadership or governance relevance

Review element	Specification
Selection stages	Identification; duplicate removal; title/abstract screening; full-text assessment; final conceptual fit
Synthesis strategy	Mechanism-based thematic synthesis

Source: Author's own elaboration based on Whittemore and Knafl (2005), Torraco (2016), and Snyder (2019).

4. Findings and Thematic Synthesis

4.1 Cognitive Expansion: When Diversity Broadens Strategic Search

A recurring pattern across the reviewed literature is that leadership diversity contributes to innovation most consistently when it expands the knowledge base, interpretive range, and strategic search capacity of the leadership group. Meta-analytic evidence indicates that board diversity is positively associated with firm innovation, but that this relationship is driven more strongly by cognitive diversity, captured through expertise and experience, than by demographic diversity alone (Makkonen, 2022). Related evidence on culturally diverse teams similarly shows that deep-level diversity is more positively associated with creativity and innovation than surface-level diversity, suggesting that differences in perspectives, mental models, and problem-solving approaches are especially relevant for innovative outcomes (Wang et al., 2019). These findings help explain why the diversity–innovation relationship remains uneven across studies. Research that relies mainly on demographic proxies such as gender or nationality often captures surface-level variation, whereas studies focusing on expertise-, experience-, or cognition-related forms of diversity are methodologically closer to the informational and interpretive mechanisms through which leadership groups shape innovation. Meta-analytic and review evidence further suggests that findings also vary depending on how innovation is operationalised, for example as inputs, outputs, novelty, or efficiency (Makkonen, 2022; Sierra-Morán et al., 2024). International evidence on board gender diversity supports this interpretation by showing positive associations with patents, novel patents, and innovative efficiency, while also linking gender-diverse boards to more innovative corporate cultures and more diverse inventor bases (Griffin et al., 2021). Evidence also suggests that minority representation in leadership may be associated with changes in corporate governance and product development, although such effects depend on the organisational position of minority leaders and the institutional conditions in which they operate (Cook & Glass, 2015). Similarly, research on female director participation indicates that board diversity can be associated with corporate innovation, while also suggesting that the relationship should be interpreted in relation to the specific form of diversity and the organisational processes through which board members contribute to innovation (Vafaei et al., 2021). A second important distinction concerns the level of analysis in the reviewed studies. Research on top management teams suggests that diversity shapes strategic innovation orientation and influences firms' choices to focus on particular innovation fields, implying a relatively direct effect on innovation trajectories (Talke et al., 2011). By contrast, research on boards points to a more indirect role through oversight, advising, and expertise-based strategic engagement rather than operational execution. A third insight is that diversity generates both informational potential and coordination challenges. Heterogeneous groups may identify blind spots, challenge dominant assumptions, and introduce non-routine alternatives, but they may also experience slower consensus formation or weaker integration when task conditions and interaction processes are not supportive (Wang et al., 2019). The most defensible synthesis is therefore not that diversity directly improves innovation, but that it expands the cognitive potential for innovation, while the realisation of that potential depends on whether heterogeneous perspectives can be effectively integrated into strategic deliberation and coherent strategic choices (Wang et al., 2019; Klarner et al., 2020).

4.2 Governance Filtering and Integration: When Diversity Becomes Actionable

The most important synthesis emerging from the review is that governance quality functions as the central translation mechanism between leadership diversity and responsible innovation. Diversity does not become

strategically useful simply by being present at the top of the firm; rather, its value depends on whether governance structures and processes can filter, organise, and integrate heterogeneous perspectives into accountable decisions and coherent strategic action (Klarner et al., 2020; Bezemer et al., 2022; Scherer & Voegtlin, 2020). Evidence from the board–innovation literature suggests that this process depends not only on formal board composition but also on how deliberation is organised, how expertise is mobilised, and how boards connect monitoring with strategic guidance. Meta-analytic findings indicate that board characteristics such as meeting frequency, outsider representation, and board independence are differentially associated with innovation, while process-oriented research shows that directors contribute to innovation through staged, expertise-based review rather than through direct operational execution (Sierra-Morán et al., 2024; Klarner et al., 2020). Governance quality therefore refers not only to structural arrangements, but also to the organisational capacity to create space for specialised knowledge, challenge assumptions constructively, and translate diverse inputs into decisions with strategic and ethical relevance (Klarner et al., 2020; Bezemer et al., 2022). This theme also helps explain why direct-effect models of diversity and innovation are often analytically unsatisfactory. When diversity is examined only as an independent variable predicting innovation output, the analysis overlooks the internal organisational processes through which diverse inputs are prioritised, interpreted, and translated into action. Review work on governance and innovation has repeatedly noted the absence of consensus in this field and the need to move beyond simple input–output approaches toward more processual and context-sensitive explanations (Asensio-López et al., 2019; Bezemer et al., 2022). For responsible innovation, this point is especially important: innovation that is expected to align with stakeholder interests, environmental sustainability, and long-term legitimacy requires governance arrangements capable of evaluating competing priorities and embedding social and environmental concerns into innovation-related decision making (Scherer & Voegtlin, 2020). The literature therefore supports a view of governance as an active integrative layer through which diversity becomes strategically actionable and potentially responsibility-enhancing, rather than as a passive institutional background or a mere control variable (Scherer & Voegtlin, 2020; Klarner et al., 2020; Asensio-López et al., 2019).

4.3 Legitimacy Signalling and Adjacent Sustainability Outcomes

A third major theme in the reviewed literature links leadership diversity to ESG disclosure, eco-innovation, and broader sustainability-oriented governance outcomes. This stream is particularly visible in European and comparative studies, where non-financial reporting obligations and governance expectations make board composition more salient as a signal of accountability and credibility (Directive 2014/95/EU; Bigelli et al., 2023; Nicolò et al., 2021). Recent evidence suggests that demographic and structural diversity can enhance the visibility and legitimacy of governance, especially when combined with enabling structures such as board independence, cultural diversity, CSR or sustainability committees, and stronger disclosure regimes (Bigelli et al., 2023; Gavana et al., 2024; Zampone et al., 2024). Related work on CSR and corporate social performance also indicates that women's representation on boards is often positively associated with CSR ratings, corporate social performance, and reputational outcomes, suggesting that diversity may matter not only for internal deliberation but also for how firms are evaluated by external stakeholders (Bear et al., 2010; Harjoto et al., 2015; Byron & Post, 2016). This stream must nevertheless be interpreted with conceptual caution. ESG disclosure, sustainability performance, SDG reporting, and eco-innovation are not equivalent to responsible innovation, even though they provide important adjacent evidence about how governance arrangements and leadership composition shape transparency, accountability, environmental orientation, and external trust (Scherer & Voegtlin, 2020; Shui et al., 2022; Zampone et al., 2024). Studies on eco- and green innovation similarly show that the effects of board gender diversity are often mediated or moderated by governance- and context-related conditions, such as CSR strategy, disclosure quality, or industry-level institutional pressures, which reinforces the broader argument that diversity matters through organisational and institutional pathways rather than through simple direct effects (Issa & Bensalem, 2022). Country-level institutional conditions also appear to shape the relationship between board gender diversity, environmental innovation, and carbon-related outcomes, indicating that the consequences of leadership diversity cannot be separated from the institutional environment in which firms operate (Konadu et al., 2022). The European context is analytically valuable because these legitimacy effects may be particularly salient in settings where board composition is more visible and more tightly linked to formal accountability expectations.

4.4 Fragmentation in the Evidence Base

Despite the recurring patterns identified in the previous sections, the evidence base remains fragmented along several important dimensions. First, studies vary substantially in how they define and operationalise diversity, often collapsing conceptually distinct forms of leadership heterogeneity into broad demographic indicators,

even though recent meta-analytic work suggests that demographic and cognitive or experience-based diversity do not produce equivalent innovation-related effects (Makkonen, 2022; Wang et al., 2019). Second, innovation outcomes are measured inconsistently across the literature, ranging from patents, novelty, and innovation efficiency to eco-innovation, ESG disclosure, and broader sustainability-oriented outcomes, which limits direct comparability across studies and contributes to the persistence of mixed findings (Makkonen, 2022; Sierra-Morán et al., 2024). Third, the level of analysis also varies considerably, as research on boards, top management teams, and broader leadership arrangements often draws on different assumptions about how diversity influences innovation, making conceptual transfer across these levels problematic unless the underlying mechanisms are carefully specified (Talke et al., 2011; Klarner et al., 2020). Methodologically, the field also remains limited by the prevalence of broad input–output models and governance proxies that do not fully capture how strategic deliberation, accountability allocation, and the integration of heterogeneous perspectives actually unfold. Review work on governance and innovation has noted the absence of consensus in this area, while more recent board–strategy scholarship shows that the literature is still dominated by archival approaches and pays insufficient attention to processual, contextual, and multilevel dynamics (Asensio-López et al., 2019; Bezemer et al., 2022). This weakens causal interpretation and means that many conclusions in the literature are stronger as suggestive patterns than as definitive explanations (Makkonen, 2022; Sierra-Morán et al., 2024). The most robust conclusion of the review is therefore not that diversity directly produces responsible innovation, but that certain dimensions of leadership diversity become more consequential when governance quality enables their productive integration and when institutional conditions reinforce the link between governance, accountability, and innovation-related responsibility (Klarner et al., 2020; Scherer & Voegtlin, 2020).

5. Discussion

The review supports a conditional and mechanism-based interpretation of leadership diversity, but its main contribution lies in clarifying where the evidence is robust and where it remains inconclusive. Three points of convergence appear relatively strong across the literature. First, diversity is most consistently associated with innovation-related outcomes when it captures cognitive, experiential, or task-related differences rather than demographic heterogeneity alone. Second, governance quality is not a peripheral condition but a central mechanism through which heterogeneous perspectives are translated into accountable strategic decisions. Third, legitimacy and disclosure effects appear particularly salient in European settings, where board composition is more visible and more tightly linked to formal accountability expectations (Makkonen, 2022; Sierra-Morán et al., 2024; Klarner et al., 2020; Bigelli et al., 2023; Nicolò et al., 2021). At the same time, the review reveals several points of tension that help explain why the literature has remained fragmented. One recurring problem is proxy slippage: demographic diversity is often used as a stand-in for broader heterogeneity even when the underlying mechanism is more plausibly cognitive or experiential. A second problem is outcome slippage: many studies move too easily between innovation output, eco-innovation, ESG disclosure, and responsible innovation without clarifying the conceptual boundaries among these constructs. A third point of tension concerns the level of analysis, as board diversity and top management team diversity are frequently discussed under the same broad heading despite relying on partly distinct mechanisms. These slippages weaken comparison across studies and make some inconsistencies in the evidence base more apparent than real (Makkonen, 2022; Wang et al., 2019; Sierra-Morán et al., 2024; Talke et al., 2011; Klarner et al., 2020). The theoretical contribution of this review lies not in claiming that diversity improves responsible innovation in a uniform or universal way, but in re-specifying the relationship among the three focal domains. Leadership diversity is best understood as a differentiated antecedent condition rather than a homogeneous attribute. Governance quality is the main organisational process through which heterogeneous perspectives become strategically useful, ethically relevant, and organisationally actionable. Responsible innovation is treated as the focal outcome domain, while ESG disclosure, eco-innovation, SDG reporting, and sustainability governance are positioned as adjacent but conceptually non-equivalent evidence streams. This formulation moves beyond a simple diversity–performance model by integrating previously separate literatures and by showing that the European context is not merely a boundary condition, but an institutional environment that shapes how diversity, governance, and accountability become linked (Scherer & Voegtlin, 2020; Bigelli et al., 2023; Nicolò et al., 2021; Gavana et al., 2024; Zampone et al., 2024).

6. Conclusion and Implications

This integrative literature review indicates that leadership diversity may shape responsible innovation in a conditional rather than uniform way. Its influence depends on which dimensions of diversity are present, how governance structures and processes translate heterogeneous perspectives into accountable decision making,

and how strongly the institutional environment embeds innovation within broader accountability, disclosure, and sustainability expectations. The review identifies three recurring mechanisms across the literature: cognitive expansion, governance filtering and integration, and legitimacy signalling. Together, these mechanisms provide an analytical basis for integrating previously fragmented research streams on diversity, governance, innovation, and sustainability-related outcomes. On this basis, the article develops an integrative conceptual framework that positions governance quality as the central link between leadership diversity and responsible innovation in European industrial firms, while also distinguishing responsible innovation from adjacent but non-equivalent domains such as ESG disclosure, eco-innovation, and SDG-related reporting. The review also has several implications for future empirical work. If the field is to move beyond broad generalisations, future studies should distinguish more carefully among demographic, experiential, and cognitive diversity instead of collapsing them into a single measure, avoid conflating adjacent outcome domains, and examine governance quality through process-sensitive designs rather than through structural proxies alone. Comparative European research would be especially valuable because it can test whether disclosure-intensive and accountability-rich institutional settings strengthen, weaken, or redirect the relationship between leadership diversity and responsible innovation.

Ethics and AI Disclosure

Author: Eva Klink

Paper title: Leadership Diversity, Governance Quality, and Responsible Innovation in European Industrial Firms: An Integrative Literature Review

Ethics Statement

This article is based exclusively on an integrative review of published scholarly literature and does not involve human participants, human biological material, animals, or primary personal data collection. For that reason, formal institutional ethics committee approval was not required for the study design under standard research ethics procedures applicable to literature-based reviews. The review was conducted with attention to transparency in search, selection, and synthesis, and with the intention to represent prior scholarship accurately and without selective distortion.

AI Use Disclosure

Generative artificial intelligence was used only as a language-support and editing aid during manuscript development. Its use was limited to improving phrasing, readability, and structural coherence under the direct supervision of the authors. All substantive intellectual tasks, including formulation of the research question, literature search design, source selection, interpretation of the literature, argument development, and final verification of the manuscript, remained the responsibility of the authors. The authors reviewed and revised all AI-assisted outputs and take full responsibility for the accuracy, originality, and integrity of the final text.
No AI-generated content was used without human verification.

Signature

Date: 26.6.2026

Signature: Eva Klink

References

Asensio-López, D., Cabeza-García, L., & González-Álvarez, N. (2019). Corporate governance and innovation: A theoretical review. *European Journal of Management and Business Economics, 28*(3), 266–284. https://doi.org/10.1108/EJMBE-05-2018-0056

Bear, S., Rahman, N., & Post, C. (2010). The Impact of Board Diversity and Gender Composition on Corporate Social Responsibility and Firm Reputation. *Journal of Business Ethics, 97*(2), 207–221. https://doi.org/10.1007/s10551-010-0505-2

Bezemer, P. J., Pugliese, A., Nicholson, G., & Zattoni, A. (2022). Toward a synthesis of the board-strategy relationship: A literature review and future research agenda. *Corporate Governance: An International Review, 31*(1), 178–197. https://doi.org/10.1111/corg.12481

Bigelli, M., Mengoli, S., & Sandri, S. (2023). ESG score, board structure and the impact of the non-financial reporting directive on European firms. *Journal of Economics and Business, 127*, 106133. https://doi.org/10.1016/j.jeconbus.2023.106133

Byron, K., & Post, C. (2016). Women on boards of directors and corporate social performance: A meta-analysis. *Corporate Governance: An International Review, 24*(4), 428–442. https://doi.org/10.1111/corg.12165

Cook, A., & Glass, C. (2015). Do minority leaders affect corporate practice? Analyzing the effect of leadership composition on governance and product development. *Strategic Organization, 13*(2), 117–139. https://doi.org/10.1177/1476127014564109

European Parliament and Council of the European Union. (2014). Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups. Official Journal of the European Union, L 330, 1–9. https://eur-lex.europa.eu/eli/dir/2014/95/oj

Farza, K., & Omri, A. (2026). Governing to be responsible: How board structure influences responsible innovation in Germany. *EuroMed Journal of Business*. https://doi.org/10.1108/EMJB-07-2025-0267

Gavana, G., Gottardo, P., & Moisello, A. M. (2024). The impact of board gender diversity on ESG disclosure: A contingency perspective. *Meditari Accountancy Research, 33*(7), 1–29. https://doi.org/10.1108/MEDAR-07-2024-2567

Griffin, D., Li, K., & Xu, T. (2021). Board gender diversity and corporate innovation: International evidence. Journal of Financial and Quantitative Analysis, 56(1), 123–154. https://doi.org/10.1017/S002210901900098X

Harjoto, M. A., Laksmana, I., & Lee, R. (2015). Board diversity and corporate social responsibility. Journal of Business Ethics, 132(4), 641–660. https://doi.org/10.1007/s10551-014-2343-0

Issa, A., & Bensalem, H. (2022). Are gender-diverse boards eco-innovative? The mediating role of corporate social responsibility strategy. *Corporate Social Responsibility and Environmental Management, 30*(2), 742–754. https://doi.org/10.1002/csr.2385

Klarner, P., Probst, G., & Useem, M. (2020). Opening the black box: Unpacking board involvement in innovation. *Strategic Organization, 18*(4), 487–519. https://doi.org/10.1177/1476127019839321

Konadu, R., Ahinful, G. S., Boakye, D. J., & Elbardan, H. (2022). Board gender diversity, environmental innovation and corporate carbon emissions. Technological Forecasting and Social Change, 174, 121279. https://doi.org/10.1016/j.techfore.2021.121279

Makkonen, T. (2022). Board diversity and firm innovation: A meta-analysis. European Journal of Innovation Management, 25(6), 941–960. https://doi.org/10.1108/EJIM-09-2021-0474

Nicolò, G., Zampone, G., Sannino, G., & De Iorio, S. (2021). Sustainable corporate governance and non-financial disclosure in Europe: Does gender diversity matter? Journal of Applied Accounting Research, 23(1), 227–249. https://doi.org/10.1108/JAAR-04-2021-0100

Scherer, A. G., & Voegtlin, C. (2020). Corporate governance for responsible innovation: Approaches to corporate governance and their implications for sustainable development. Academy of Management Perspectives, 34(2), 182–208. https://doi.org/10.5465/amp.2017.0175

Sierra-Morán, J., Cabeza-García, L., González-Álvarez, N., & Botella, J. (2024). The board of directors and firm innovation: A meta-analytical review. Business Research Quarterly, 27(2), 182–207. https://doi.org/10.1177/23409444211039856

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research, 104*, 333–339. https://doi.org/10.1016/j.jbusres.2019.07.039

Stilgoe, J., Owen, R., & Macnaghten, P. (2013). Developing a framework for responsible innovation. *Research Policy, 42*(9), 1568–1580. https://doi.org/10.1016/j.respol.2013.05.008

Talke, K., Salomo, S., & Kock, A. (2011). Top management team diversity and strategic innovation orientation: The relationship and consequences for innovativeness and performance. *Journal of Product Innovation Management, 28*(6), 819–832. https://doi.org/10.1111/j.1540-5885.2011.00851.x

Torraco, R. J. (2016). Writing integrative literature reviews: Using the past and present to explore the future. *Human Resource Development Review, 15*(4), 404–428. https://doi.org/10.1177/1534484316671606

Vafaei, A., Henry, D., Ahmed, K., & Alipour, M. (2021).. Board diversity: Female director participation and corporate innovation. *International Journal of Accounting & Information Management, 29*(2), 247–279. https://doi.org/10.1108/IJAIM-06-2020-0080

Whittemore, R., & Knafl, K. (2005). The integrative review: Updated methodology. *Journal of Advanced Nursing, 52*(5), 546–553. https://doi.org/10.1111/j.1365-2648.2005.03621.x

Wang, J., Cheng, G., Chen, T., Leung, K. (2019). Team creativity/innovation in culturally diverse teams: A meta-analysis. *Journal of Organizational Behavior*. https://doi.org/10.1002/job.2362

Zaman, R., Asiaei, K., Nadeem, M., Malik, I., & Arif, M. (2023). Board demographic, structural diversity, and eco-innovation: International evidence. *Corporate Governance: An International Review, 32*(3), 374–390. https://doi.org/10.1111/corg.12545

Shui, X., Zhang, M., Smart, P. K., & Ye, F. (2022). Sustainable corporate governance for environmental innovation: A configurational analysis on board capital, CEO power and ownership structure. Journal of Business Research, 149, 786–794. https://doi.org/10.1016/j.jbusres.2022.05.037

Zampone, G., Nicolò, G., Sannino, G., & De Iorio, S. (2024). Gender diversity and SDG disclosure: The mediating role of the sustainability committee. Journal of Applied Accounting Research, 25(1), 171–193. https://doi.org/10.1108/JAAR-06-2022-0151

Carbon Policy, ESG Adoption, and Industrial Marketing: A Bibliometric Analysis of an Empirically Empty Integrative Space

Erisa Luzi and Irma Shyle
Department of Production Management, Faculty of Mechanical Engineering, Polytechnic University of Tirana, Albania

e.luzi@fim.edu.al
ishyle@fim.edu.al

Abstract: The extent to which academic literature aligns with the rapid regulatory changes introduced by the Corporate Sustainability Reporting Directive and the phased implementation of the European Sustainability Reporting Standards remains uncertain, particularly regarding the integration of carbon policy regulation, environmental, social, and governance (ESG) adoption, and industrial marketing strategies. To address this question, 2,370 peer-reviewed records harmonized across six search streams in OpenAlex (2004–2025) were examined. These records were retrieved using openalexR, analyzed with the Bibliometrix R package, and visualized with VOSviewer. The study employed five sequential analytical layers: performance metrics, co-citation networks, bibliographic coupling with sensitivity testing, keyword co-occurrence, and thematic mapping. The four-cluster coupling solution was validated through cluster stability analysis (Adjusted Rand Index = 0.575; Normalized Mutual Information = 0.638), yielding four structural rather than numerical findings. First, the intersection of carbon policy, ESG, and industrial marketing yielded no records under the harmonized vocabulary. Second, when ESG is excluded, the carbon–marketing relationship is represented by only eight records, indicating that ESG is an essential, non-bypassable mediating construct. Third, the Western Balkans account for only 4.8% of the global emerging-economy ESG corpus, with Albanian ESG-related scholarship comprising just 0.06% of that body (one record in 1,773) and 0.21% of the consolidated corpus (five records in 2,370). Finally, geographic specialization has advanced more rapidly than specialization in marketing strategies. Seven independent observations support the observed separation between carbon and marketing, indicating that this gap is structural rather than artefactual. These findings underscore the need for integrative research models that are both theoretically justified and contextually overdue, particularly in the underrepresented research environment of the Western Balkans. By establishing this gap through convergent bibliometric evidence rather than interpretation, the review offers a structural foundation and a research agenda for integrative models that link carbon policy pressure, ESG adoption, corporate reputation, green innovation, and industrial marketing strategy in manufacturing in emerging economies.

Keywords: ESG, Carbon policy, Industrial marketing, Bibliometric analysis, Emerging economies, Western Balkans

1. Introduction

The transition of sustainability reporting from a voluntary activity to a legal obligation has reshaped the questions firms must answer about their environmental conduct and the way they communicate it. The Corporate Sustainability Reporting Directive (CSRD; European Union, 2022) and the phased European Sustainability Reporting Standards (ESRS; European Financial Reporting Advisory Group, 2023) now bind three constructs together in practice: the regulatory pressure of carbon policy, the adoption of environmental, social and governance (ESG) practices, and the marketing strategy through which firms signal performance to stakeholders. Whether the academic literature has integrated these three constructs to the same degree is far from clear.

This paper takes up that question. We work with a harmonized corpus of 2,370 peer-reviewed records retrieved from OpenAlex over 2004–2025 across six search streams, applying a sequential pipeline of performance metrics, co-citation analysis, bibliographic coupling with sensitivity testing, keyword co-occurrence, and thematic mapping. The objective is not to add to the several thousand existing empirical ESG studies, but to map the topology of the integrative space, identifying, with anchor evidence rather than interpretation, where that space is occupied and where it stands empty. The resulting map is intended as a foundation for the integrative, theoretically motivated models the field now needs, particularly in emerging-economy manufacturing.

2. Theoretical Background

The corpus rests intellectually on a small set of references that the co-citation analysis later confirms empirically. Suchman's (1995) distinction between pragmatic, moral and cognitive legitimacy maps directly onto the differentiated audiences that ESG reports now address, investors, regulators and civil-society actors. While legitimacy theory explains why firms disclose, stakeholder theory, in Freeman's (1984) formulation, explains to whom disclosure is owed and underpins the materiality assessment standard in ESRS-compliant reporting. Barney's (1991) resource-based view supplies a complementary lens, treating ESG capabilities as potential

sources of competitive advantage rather than reporting overhead. Institutional theory (DiMaggio and Powell, 1983) accounts for the isomorphic pressures that drive convergence in disclosure practices, while signaling theory (Spence, 1973) frames disclosure as a costly signal of unobservable quality.

Porter and van der Linde's (1995) hypothesis that well-designed environmental regulation can stimulate rather than impede innovation supplies the analytical bridge between the carbon-policy and green-innovation constructs. Together, these references articulate the causal pathway from regulatory pressure to innovation and reputational outcomes that the integrative model proposes to specify. Greenwashing scholarship (Delmas and Burbano, 2011) provides the critical counterpoint, locating the marketing-communication dimension of ESG within a literature concerned with the gap between claimed and actual performance.

3. Methodology

Corpus construction was conducted using OpenAlex, accessed programmatically via the openalexR package in R. OpenAlex consolidates bibliographic records previously distributed across several archives and indexes more than 250 million works through an open, reproducible application programming interface (Priem, Piwowar and Orr, 2022). The choice over Scopus and Web of Science carries an explicit limitation, acknowledged in Section 7, but it follows established precedent: a recent Scopus-target bibliometric study used openalexR as its primary retrieval engine for more than 41,000 records (Bochenek et al., 2025). The structural findings reported below derive from the corpus's relational architecture rather than from absolute counts that would be sensitive to database selection.

Six search streams were defined: carbon–ESG (S1), ESG–marketing (S2), carbon–marketing (S3), the trinary intersection of all three constructs (S4), emerging economies (S5), and the Western Balkans (S6). All six streams were queried on 10 May 2026. Retrieval identified 2,418 records; after deduplication and removal of cross-stream duplicates, the consolidated corpus M comprised 2,370 records (Figure 1). Because OpenAlex is updated continuously, these counts reflect the database state on that date; later retrievals may yield marginally different totals, although the structural relationships underpinning the findings are robust to such variation.

Analysis proceeded through five sequential analytical layers, following the protocol consolidated by Donthu et al. (2021): (i) descriptive performance metrics; (ii) co-citation networks, which recover the field's foundational intellectual base; (iii) bibliographic coupling with sensitivity testing, which maps the synthesis active in the citing literature; (iv) keyword co-occurrence; and (v) thematic mapping. Implementation relied on the Bibliometrix R package (Aria and Cuccurullo, 2017) for descriptive statistics, network construction, and clustering, and on VOSviewer (van Eck and Waltman, 2010) for visualization. Louvain community detection was applied to the co-citation, coupling, and keyword graphs.

The four-cluster coupling solution was subjected to a sensitivity analysis: the same algorithm was re-applied to a top-40 subset of the top-50 records, and stability was measured by the Adjusted Rand Index, the Normalized Mutual Information score, and the greedy maximum overlap of cluster assignments. The procedure provides explicit assurance that the reported cluster structure is not an artefact of threshold choice.

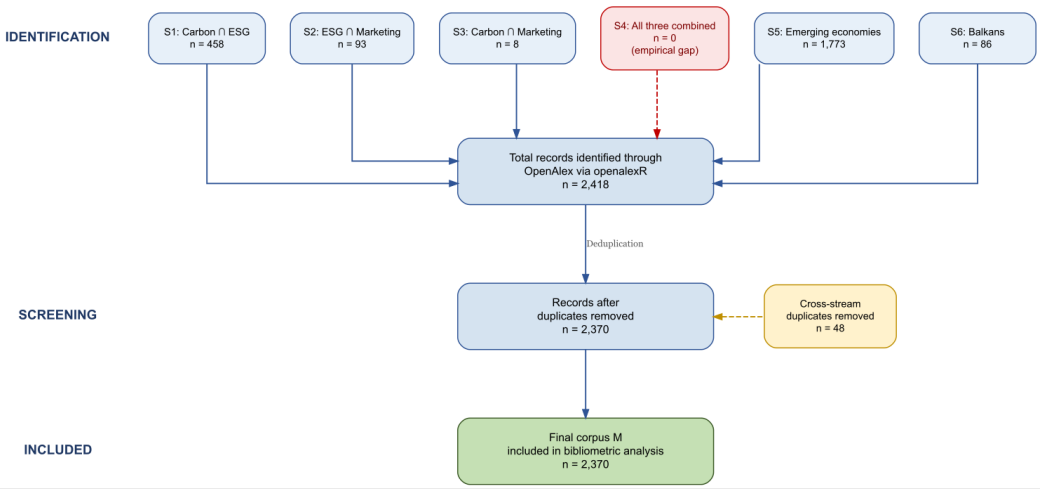


Figure 1: Corpus construction. Six search streams retrieved via OpenAlex/openalexR (S1 carbon–ESG = 458; S2 ESG–marketing = 93; S3 carbon–marketing = 8; S4 trinary = 0; S5 emerging economies = 1,773; S6 Western Balkans = 86) consolidate, after deduplication, into corpus M (n = 2,370)

4. Results

4.1 Performance

The corpus comprises 2,370 records from 1,020 distinct sources, with an annual growth rate of 39.53% and an average document age of 2.4 years. Production accelerates sharply after 2022: 161 records in 2022, 341 in 2023, 523 in 2024, and 1,091 in 2025, with the 2025 cohort alone accounting for 46% of the corpus, coinciding with the staged adoption of the CSRD and ESRS. The author distribution is steep: of 5,843 authors, approximately 88.8% appear exactly once, a Lotka-style pattern (Lotka, 1926) indicative of a field yet to consolidate. Leading peer-reviewed outlets are Sustainability (n = 111), Finance Research Letters (n = 57), Corporate Social Responsibility and Environmental Management (n = 38), and Business Strategy and the Environment (n = 29); marketing-discipline journals are notably absent. Geographically, China (19.6%), India (9.0%), and Indonesia (7.8%) dominate first-author production.

4.2 Co-citation Analysis

Co-citation analysis recovers the field's intellectual foundation and empirically confirms its theoretical anchors. Suchman (1995) and DiMaggio and Powell (1983) each receive 69 in-corpus citations and are co-cited as a paired foundation; Barney (1991) and Freeman (1984) receive 68 and 64, respectively; and Porter and van der Linde (1995) receive 58, consistently co-cited with the institutional and stakeholder anchors. The empirical centrality of these references corroborates the theoretical positioning set out in Section 2 (Figure 2).

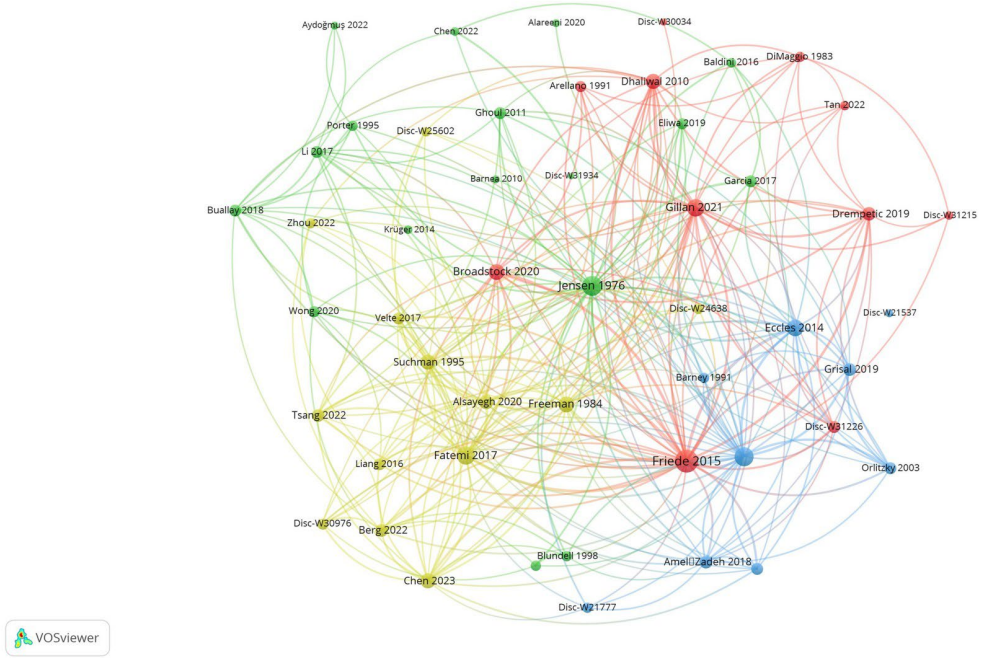


Figure 2: Co-citation network of the most-cited references (VOSviewer), showing four communities organized around the legitimacy, institutional, stakeholder and resource-based foundations of the field

4.3 Bibliographic Coupling and Cluster Stability

Louvain community detection on the top-50 coupling subnetwork returns four communities (modularity Q = 0.0706). Cluster 1 comprises bibliometric and systematic ESG reviews (Thomas, Jayachandran and Biju, 2024; Zhang, Yang and Wang, 2024); Cluster 2 comprises empirical studies of the ESG–financial-performance relationship (Singh, Verma and Shome, 2023); Cluster 3, the most relevant to the integrative model, addresses climate-policy uncertainty, ESG, and firm performance (Persakis, 2023; Sahu, Debata and Khanna, 2025); and Cluster 4 comprises a heterogeneous set organized around ESG ratings and governance (Figure 3). The sensitivity analysis confirms robustness: comparing the top-50 baseline with a top-40 subset yields an Adjusted Rand Index of 0.575, Normalized Mutual Information of 0.638, and a greedy maximum overlap of 77.5% (31 of 40 records preserved). Three clusters migrate cohesively; the largest splits into two coherent subgroups when its weakest-coupled members are removed, with modularity rising slightly (Q = 0.0739), providing evidence that the structure is not a threshold artefact.

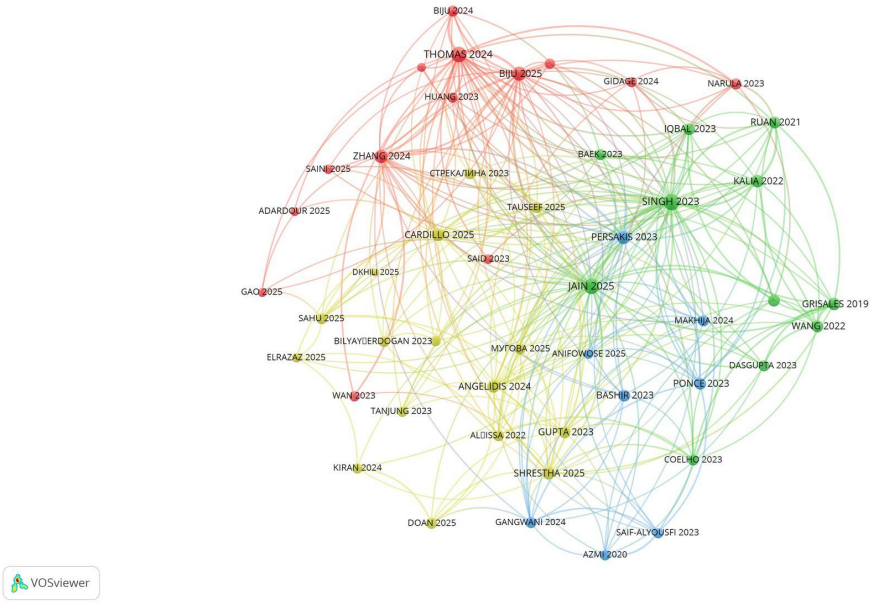


Figure 3: Bibliographic coupling network of the top-50 records (VOSviewer), with the four Louvain communities encoded by colour: ESG reviews (red), the ESG–financial-performance literature (green), the climate-policy-uncertainty cluster (yellow), and ESG ratings and governance (blue)

4.4 Keyword co-occurrence

The keyword co-occurrence network locates the constructs relative to one another. 'Marketing' sits at the periphery of the ESG–disclosure community and 'climate change' at the periphery of the macro-environmental community, while 'sustainability' lies on the boundary between the two without activating it as a bridge (Figure 4). The structural separation of the marketing and climate vocabularies, and the peripheral position of each within its own community, supplies a further independent confirmation of the carbon–marketing isolation.

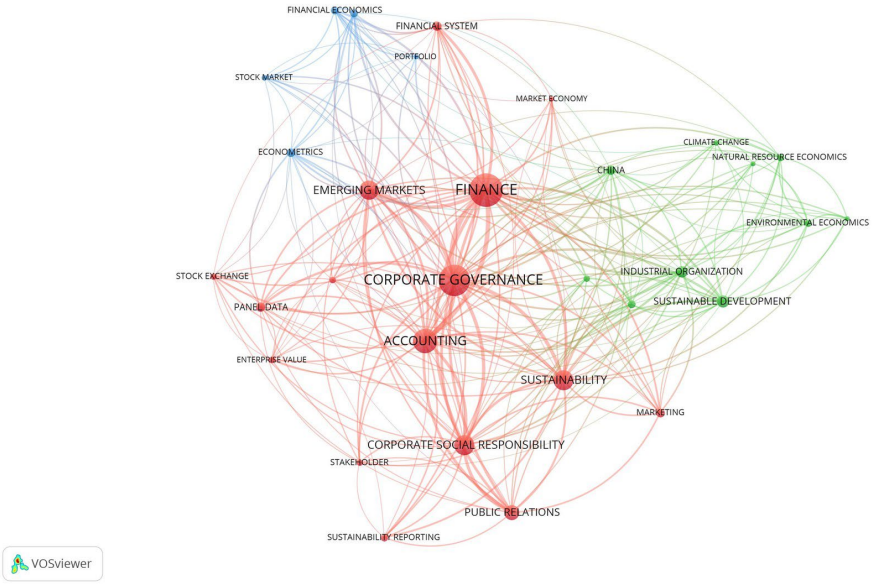


Figure 4: Keyword co-occurrence network (VOSviewer). 'Marketing' sits at the periphery of the ESG–disclosure community (red) and 'climate change' at the periphery of the macro-environmental community (green), with 'sustainability' on the boundary between them

4.5 Thematic Mapping

Thematic mapping (Cobo et al., 2011) returns four clusters: a motor cluster (101 keywords) anchored by 'business', 'economics', and 'political science'; a niche cluster (60) anchored by 'finance' and 'emerging markets'; a basic cluster (82) anchored by 'corporate governance', 'accounting', and 'sustainability'; and a small emerging

or declining cluster (7). Critically, neither 'marketing' nor 'climate change' constitutes a separate theme: despite high frequencies (209 and 123 occurrences, respectively), both are subsumed into the motor cluster as subordinate vocabulary (Figure 5). The temporal profile completes the picture: the density of the marketing keyword, measured by the share of papers mentioning it, falls from 19.9% in the foundation period (2004–2020) to 6.2% in the most recent (2024–2025), a threefold relative decline of 13.7 percentage points, while ESG-related vocabulary expands to dominate (Figure 6). The integrative space has thus become structurally less likely, not more, to be filled by the natural growth of the literature.

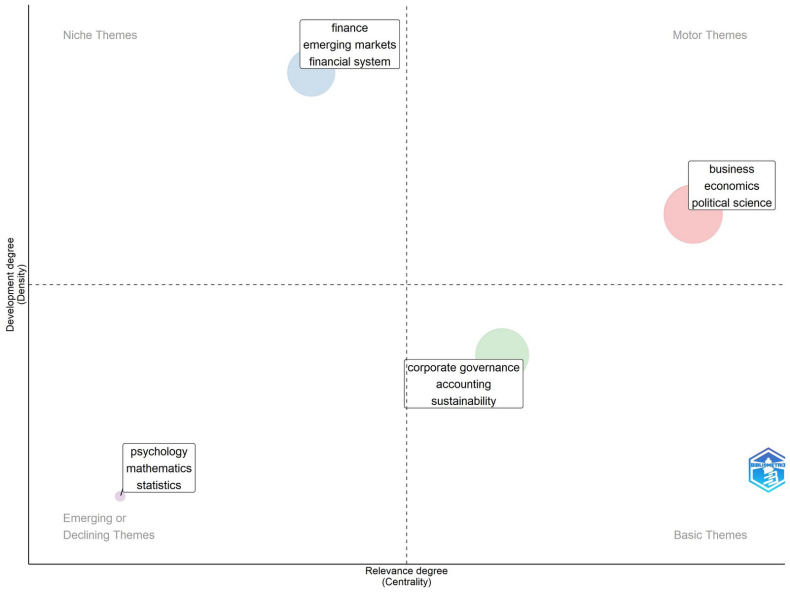


Figure 5: Thematic map. Marketing and climate change appear as subordinate vocabulary within the motor cluster rather than as themes in their own right

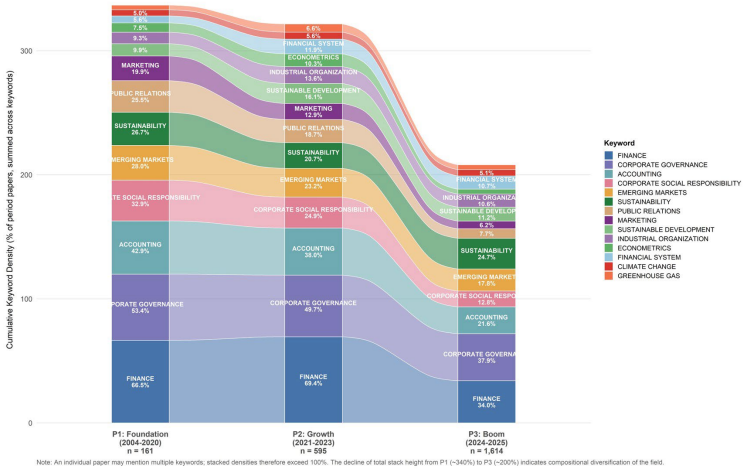


Figure 6: Compositional transition. The density of the marketing keyword falls from 19.9% to 6.2% across three successive periods (2004–2020, 2021–2023, 2024–2025), a threefold relative decline, while ESG-related vocabulary expands to dominate

5. Gap Analysis

Four findings constitute the argument's core. Each is grounded in an explicit count, ratio, or zero, and together they form a logical chain: the first establishes that the integrative space is empty; the second provides the mechanism; the third establishes the contextual deficit; and the fourth explains why the deficit persists.

5.1 The Trinary Integration is Categorically Empty

Under the harmonized vocabulary, the intersection of carbon policy, ESG, and industrial marketing yields no peer-reviewed records from 2004–2025. A single near-miss in the consolidated corpus (Lutfiana et al., 2025) engages carbon policy and ESG performance but does not treat industrial marketing as a strategic construct. The

convergence of the stream-level zero with the absence of substantive trinary work elsewhere indicates a categorical structural absence rather than a vocabulary artefact.

5.2 The Carbon–marketing Dyad is Structurally Isolated

When ESG is removed as an intermediate construct, the carbon–marketing literature contains only 8 records, compared with 458 for the carbon–ESG dyad and 93 for the ESG–marketing dyad, ratios of 57:1 and 12:1. The carbon–marketing dyad shares none of its 8 records with either ESG-anchored dyad. The pattern indicates that ESG functions as a non-bypassable mediating construct: when ESG is present, the integrative literature expands to more than 500 records; when absent, the dyad collapses to a handful of supply-chain studies that touch on integrative concepts only obliquely.

5.3 The Western Balkans and Albania are Systematically Under-represented

The global emerging-economy ESG literature (S5) contains 1,773 records; the Western Balkans literature (S6) contains 86, an underrepresentation of approximately 21:1, with Serbia (25 records) and Bosnia and Herzegovina (10) ahead of single-digit Albania, Kosovo, Montenegro, and North Macedonia. Within this, ESG-substantive Albanian scholarship appears in five records (Dorri and Shahini, 2025; Feimi and Vela, 2025; Kruja, Canco and Kola, 2025; Delova-Jolevska et al., 2024; Dedaj et al., 2019). Without the regionally dedicated stream, Albanian ESG scholarship would register as a single voice in 1,773 records (0.06%); even with it, it accounts for only 0.21% of the consolidated corpus (5/2,370). The regional field has not yet taken shape at the indexed-publication scale.

5.4 Geographic Specialization has Outpaced Marketing Specialization

The emerging-economy ESG literature (1,773 records) exceeds the ESG–marketing literature (93 records) by a factor of nineteen. Contextual, geographic deepening of ESG research has progressed considerably further than the integrative thematic axes, with marketing-strategy specialization lagging by an order of magnitude. Read together, the four findings cohere: the integrative space is categorically empty, ESG is its non-bypassable mediator, the regional and Albanian base is near-zero, and contextual specialization has outpaced integrative-marketing specialization, explaining why the gap has remained unfilled. Across the five analytical layers, seven independent observations converge on the carbon–marketing isolation: the eight-record dyad; the two null overlaps between the carbon–marketing stream and each ESG-anchored stream; the absence of marketing from the co-citation base; the absence of a marketing-integrative coupling cluster; the absorption of marketing within the thematic map; and its peripheral, separated position in the keyword network.

6. Discussion and Implications

The corpus describes a field at an inflection point: exponential, regulation-coincident growth; weak consolidation around stable scholars or conceptual axes; and several loosely connected schools of thought. This configuration offers a window through which integrative reviews and theoretically grounded empirical models can shape the trajectory of consolidation in ways they cannot in mature fields.

The findings imply a clear research agenda. The categorically empty trinary integration calls for models that jointly specify carbon-policy pressure, ESG adoption, and industrial marketing strategy. The carbon–marketing isolation calls for empirical work to test ESG as a mediator, including its direct, indirect, and conditional pathways. The regional deficit calls for country-comparative work in underrepresented emerging economies using harmonized instruments. There are practical implications too: as greenwashing-prevention frameworks advance, policy-relevant academic input on the marketing-communication dimension of ESG remains scarce relative to demand (Delmas and Burbano, 2011).

7. Conclusion and Limitations

This review of 2,370 records establishes four structural findings rather than counts: the trinary integration of carbon policy, ESG, and industrial marketing is empirically empty; ESG serves as an inescapable mediator between carbon policy and marketing; the Western Balkans and Albania are profoundly underrepresented; and geographic specialization has outpaced marketing specialization. Seven independent observations, drawn from the five analytical layers, converge on the same carbon–marketing isolation, indicating a structural rather than artefactual gap.

Two limitations qualify the findings. First, OpenAlex is the sole bibliographic source; while it offers broad, reproducible coverage, including non-Anglophone outlets relevant to the region, a companion study will cross-validate with Scopus and Web of Science. Second, the carbon and marketing vocabularies are not perfectly

symmetric across streams, a deliberate scoping choice to exclude peripheral general-management literature; the trinary-gap finding holds both at the stream level and in a substantive examination of the corpus. The review provides a structural foundation and a research agenda for integrative ESG models in emerging-economy manufacturing and stands as a contribution to the literature in its own right.

Acknowledgements

The authors gratefully acknowledge the Polytechnic University of Tirana and the Faculty of Mechanical Engineering for funding the first author's participation in the conference.

Ethics Declaration: This research did not involve human participants, personal data, or animal subjects and relied solely on publicly available bibliographic metadata; therefore, ethical clearance was not required.

AI Declaration: AI-based tools were used for language editing and formatting. All ideas, analysis, results, and conclusions are the authors' own, and the authors take full responsibility for the final text.

References

Aria, M. and Cuccurullo, C. (2017) "Bibliometrix: An R-tool for comprehensive science mapping analysis", Journal of Informetrics, Vol 11, No. 4, pp 959–975.

Barney, J. (1991) "Firm resources and sustained competitive advantage", Journal of Management, Vol 17, No. 1, pp 99–120.

Bochenek, B. et al. (2025) "A bibliometric analysis with OpenAlex data of papers on the health impact of air pollution", International Journal of Occupational Medicine and Environmental Health, Vol 38, No. 3, pp 222–235.

Cobo, M. J. et al. (2011) "An approach for detecting, quantifying, and visualizing the evolution of a research field", Journal of Informetrics, Vol 5, No. 1, pp 146–166.

Dedaj, B. et al. (2019) "Does the ESG matter for the countries that are not part of the European Higher Education Area?", International Journal of Research in Business and Social Science, Vol 8, No. 6, pp 134–144.

Delmas, M. A. and Burbano, V. C. (2011) "The drivers of greenwashing", California Management Review, Vol 54, No. 1, pp 64–87.

Delova-Jolevska, E. et al. (2024) "The impact of ESG risks on the economic growth in the Western Balkan countries", Sustainability, Vol 16, No. 19, 8487.

DiMaggio, P. J. and Powell, W. W. (1983) "The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields", American Sociological Review, Vol 48, No. 2, pp 147–160.

Donthu, N. et al. (2021) "How to conduct a bibliometric analysis: An overview and guidelines", Journal of Business Research, Vol 133, pp 285–296.

Dorri, F. and Shahini, B. (2025) "Integrating ESG strategies in real estate: Enhancing resilience against climate risks", Environmental Ethics & Law, Vol 1, No. 1, pp 38–51.

European Financial Reporting Advisory Group (2023) European Sustainability Reporting Standards: Set 1, Commission Delegated Regulation (EU) 2023/2772.

European Union (2022) "Directive (EU) 2022/2464 ... as regards corporate sustainability reporting", Official Journal of the European Union, L 322, pp 15–80.

Feimi, D. and Vela, F. (2025) "Green banking in Albania: Examining its impact on environmental performance, financing, and corporate image", Theoretical and Practical Research in Economic Fields, Vol 16, No. 1, pp 235–245.

Freeman, R. E. (1984) Strategic Management: A Stakeholder Approach, Pitman, Boston.

Kruja, D., Canco, I. and Kola, F. (2025) "From green demand to green skills: The role of consumers in shaping sustainable workforce competencies", Sustainability, Vol 17, No. 24, 10890.

Lotka, A. J. (1926) "The frequency distribution of scientific productivity", Journal of the Washington Academy of Sciences, Vol 16, No. 12, pp 317–323.

Lutfiana, L. et al. (2025) "Navigating climate challenges: How the Paris Agreement and capital shape the ESG performance", Business Strategy and the Environment, advance online publication.

Persakis, A. (2023) "The impact of climate policy uncertainty on ESG performance, carbon emission intensity and firm performance", Environment, Development and Sustainability, Vol 26, No. 9, pp 24031–24081.

Porter, M. E. and van der Linde, C. (1995) "Toward a new conception of the environment–competitiveness relationship", Journal of Economic Perspectives, Vol 9, No. 4, pp 97–118.

Priem, J., Piwowar, H. and Orr, R. (2022) OpenAlex: A fully-open index of scholarly works, authors, venues, institutions, and concepts, arXiv preprint arXiv:2205.01833.

Sahu, A. K., Debata, B. and Khanna, G. (2025) "Unveiling the nexus between ESG performance, climate policy uncertainty and corporate innovation", Social Responsibility Journal, Vol 21, No. 4, pp 893–921.

Singh, A., Verma, S. and Shome, S. (2023) "ESG-CFP relationship: Exploring the moderating role of financial slack", International Journal of Emerging Markets, Vol 19, No. 11, pp 4109–4127.

Spence, M. (1973) "Job market signaling", The Quarterly Journal of Economics, Vol 87, No. 3, pp 355–374.

Suchman, M. C. (1995) "Managing legitimacy: Strategic and institutional approaches", Academy of Management Review, Vol 20, No. 3, pp 571–610.

Thomas, A. S., Jayachandran, A. and Biju, A. V. N. (2024) "Strategic mapping of the environmental social governance landscape in finance", Corporate Social Responsibility and Environmental Management, Vol 31, No. 5, pp 4428–4453.

van Eck, N. J. and Waltman, L. (2010) "Software survey: VOSviewer, a computer program for bibliometric mapping", Scientometrics, Vol 84, No. 2, pp 523–538.

Zhang, N., Yang, C. and Wang, S. (2024) "Research progress and prospect of environmental, social and governance: A systematic literature review and bibliometric analysis", Journal of Cleaner Production, Vol 447, 141489.

Effectiveness of Early Risk Assessment in Enhancing IT Project Success in Sri Lanka

Dinesha Madurangi Badde Vithanalage
Business Management Faculty, York St John University, UK

dineshamadurangi1998@gmail.com
dinesha.badde-vith@yorksj.ac.uk

Abstract: The importance of effective risk management has been rising in Sri Lanka as the organizations strongly rely on Information Technology (IT) projects for digital transformation and competitiveness. The sector is growing but IT projects still have cost overrun, project delays, failures of requirements, technical challenges and problems with achieving desired outcomes. The aim of this study is to analyze the effects on Early Risk Identification and Risk Response on IT Project Success in Sri Lanka and to investigate opportunities to improve the IT Project Risk Management in the context of technology and existing frameworks. The positivist philosophy used deductive approach, mono method quantitative design, cross section time horizon and survey strategy were used. The data was gathered by structured questionnaires from IT project professionals. It is observed that there were 384 targeted respondents, out of which 374 responses were received, corresponding to 97.39% response rate. The reliability measure for Early Risk Identification, Risk Response and IT Project Success was very high ($\alpha = 0.931$, $\alpha = 0.848$, and $\alpha = 0.948$, respectively). The regression analysis revealed a high level of correlation ($R = 0.868$) among the predictors and project success, with 75.4% of the project success explained by the predictors ($R^2 = 0.754$). Early Risk Identification ($\beta = 0.564$, $p < 0.001$) and Risk Response ($\beta = 0.371$, $p < 0.001$) were significantly associated with project success. The results highlight early risk management in the institutions, professional training, tools assisted by technology, stakeholders' participation and recognized risk management standards.

Keywords: Early risk identification, Risk response, IT project success, Risk management, Information technology projects, Sri Lankan IT industry

1. Introduction

1.1 Background of Study

The ongoing digital transformation in Sri Lanka increased the necessity for successful projects. However, projects often face challenges related to cost constraints, scope changes, time limitations, and incomplete information. Koggalahewa and Abeysekera (2021) suggest that IT projects are only finished within planned time and financial requirements at a very low level of 12% showing the importance of risk management. Risks may occur at an initial, middle, late stage of a project but lack of feasibility analysis, lack of requirements and weak early risk identification are of critical importance as they may afterwards result in rework, delays and failure. Risk management can empower organizations to find risk, assess it, mitigate it, and prevent its threat to project success (Schmidt, 2023). However, there is financial scarcity, poor knowledge, lack of experience and organisational support which limit the consistent implementation. Bachtiar and Prasetya (2024) also report that undergoing a poor requirement analysis plays an important role in the failure of software projects. Thus, this research discusses proactive risk management concerning the budget, schedule, and anticipated project quality.

1.2 Problem Statement

IT project failure Continues to pose significant operational challenges and financial impacts even as the awareness of effective project management increases in the organization. Recent large-scale IT projects worldwide have been reported to exceed their budgets by 45%, experience schedule overruns of 7%, and deliver 56% less value than originally anticipated (Bloch, Blumberg and Laartz, 2012). This issue is significance to Sri Lanka since the failure of IT projects can undermine the competitiveness, disincentivize investment, and limit the digital transformation. A key contributing factor is inadequate early risk identification, as many Sri Lankan IT organizations lack standardized procedures for identifying, assessing and responding to potential risks during initial project stages (Jayasinghe et al., 2022). Effective risk management is further inhibited by financial constraint, lack of competent risk practitioners, and opposition to change (Espíndola et al., 2022). Additionally, risk management can occasionally be viewed as an unnecessary project cost (Perera et al., 2014). Hence, systematic initial risk management plays crucial roles in enhancing project cost, time, quality and success.

1.3 Sri Lanka's IT Sector and Project Failures

IT sector plays a significant role in the economy of Sri Lanka with the exports of software as well as digital infrastructure and economic development. IT projects are constrained by lack of finance, poor risk management,

lack of expertise, poor planning and requirement problems. These obstacles lead to escalation in budgets, project delays, lower value of the project, re-work, which is expensive, and project failure.

Table 1: Problem Identification

Factor	Global IT Project Statistics	Sri Lankan IT Project Challenges
Budget Overruns	IT projects exceed planned budgets by approximately 45% (Jayasekara, 2023).	Sri Lankan IT firms experience financial constraints and inadequate financial planning, increasing the likelihood of budget overruns.
Timeline Delays	IT projects exceed their expected completion time by approximately 7% (Lopes and Mañas, 2013).	Inadequate project scheduling and limited early risk mitigation contribute to frequent delays in project completion.
Project Value Loss	Approximately 56% of projects deliver less value than expected (Perera, 2014).	Poor requirement analysis can prevent Sri Lankan IT projects from delivering expected outcomes and meeting stakeholder expectations.
Success Rate	Only 12% of projects are completed on time and within budget (Aladağ, 2023).	Limited adoption of structured risk management practices reduces the likelihood of successful IT project completion in Sri Lanka.

Source: Author Construct, 2026

1.4 Research Objectives

- To examine the relationship between early risk identification and project success in IT projects.
- To analyses the impact of risk response strategies on the success of IT projects.
- To explore ways in which organizations can improve early risk management frameworks to enhance IT project success.
- To assess the role of technology in enhancing early risk management effectiveness, including Risk Identification, Risk Assessment, Risk Evaluation, and Risk Mitigation, in IT projects.

1.5 Research Questions

- What is the relationship between early risk identification and project success?
- What is the relationship between early risk response and project success?
- How can organizations improve early risk management frameworks to enhance project success in IT projects?
- What role does technology play in enhancing early risk management effectiveness, including Risk Identification, Risk Assessment, Risk Evaluation, and Risk Mitigation, in IT projects?

2. Literature Review

2.1 Theoretical Overview

2.1.1 Project early risk management framework (PMBOK)

Project Management Body of Knowledge (PMBOK) offers a framework for the identification, analysis, response and monitoring of project risks. It has risk management procedures that enable proactive decision making by project teams that identify risks which have the potential to have a significant impact on project objectives prior to risk occurring. These processes are particularly important in IT projects, where changing requirements, cybersecurity threats and technological uncertainty create significant project management challenges. Aven (2016) highlights the need for systematic risk assessment in uncertainty management, and Schmidt (2023) discusses mechanisms that lead to IT project failure. However, structured risk management does not necessarily guarantee project success. It is dependent on the resources of the organisation, proper management and the regular application of suitable procedures. Organizations with limited resources might find it challenging to adopt an integrated approach to risk management. While the PMBOK offers an effective procedural basis, it does not adequately account for some of the differences in organization's risk management capacities. This study investigates two related processes: Early Risk Identification and Risk Response, using PMBOK. These processes constitute the independent variables in the conceptual framework and IT Project Success is the dependent variable.

2.1.2 Contingency theory

According to Contingency Theory, the success of projects hinges on the management practices adapted to organisational and environmental circumstances. The dynamic nature of technologies in IT projects in Sri Lanka necessitates agile risk management (Tsuchida and Takeda, 2021). Risk control, efficiency and project success can be enhanced by adapting the risk strategies to the project circumstances (Tsuchida and Takeda, 2021).

2.1.3 Technology acceptance model (TAM)

The Technology Acceptance Model (TAM), proposed by Davis in 1989, explains technology adoption through perceived usefulness and ease of use. In Sri Lankan IT projects, TAM helps identify user resistance and mitigate early adoption risks. Addressing these factors improves user acceptance, satisfaction and organisational efficiency, ultimately contributing to successful IT project implementation and long-term sustainability.

2.2 Empirical Framework

2.2.1 IT project success

The success of the project has historically been assessed in terms of three criteria: cost, time and quality. However, recent approaches to evaluating project performance increasingly recognise the importance of strategic objectives, stakeholder expectations and broader organisational benefits. Kaufmann and Kock (2022) investigate the correlation between project management effort, project complexity and project profitability, and emphasize the need to take project characteristics into account when assessing project management effectiveness. Moreover, Ahmad et al. (2022) explore project risk management and project leadership in the context of project success. Based on their research, they recommend that management/leadership elements must be considered in conjunction, not as a separate organisational activity as risk management. However, the results of the various industries cannot be directly transferred to IT projects in Sri Lanka. IT projects differ from many conventional projects in technological uncertainty, the varying software needs and the cybersecurity issues. In addition, the evaluation of project success affected by differences in stakeholders' expectations and organizational resources. In this study, the operationalization of IT Project Success is the primary-based on project completion time, budget compliance, scope stability and efficiency. For this reason, its findings are directed towards these dimensions instead of all aspects of project success.

2.2.2 Early risk identification

Early Risk Identification is about identifying potential threats before they interfere with project activities. Aven (2016) introduced a conceptual understanding of risk assessment. Aven, (2016) adopts a broader theoretical perspective on risk management, whereas Bakker, Boonstra and Wortmann (2009) synthesize empirical evidence on the relationship between risk management and project success in IT projects. Correspondingly, Jada and Mayayise (2023) highlight risks of cybersecurity related to artificial intelligence. But their emphasis on cybersecurity does not necessarily determine the importance of early risk identification in terms of project success. While these studies demonstrate the crucial role of proactive risk management, they are difficult to apply to Sri Lankan IT projects due to different approaches to the studies, coverage of different industries, and different organisational contexts. Hence, more empirical research is needed to explore the relationship between Early Risk Identification and IT Project Success in Sri Lanka in the context of the country.

2.2.3 Risk response

Risk Response involves organisational actions taken following risk identification, including strategies such as risk avoidance, mitigation, transfer and acceptance. Bhoola, Hiremath and Mallik (2014) review risk response strategies for software projects and indicate evidence directly applicable to the IT industry. By contrast, Aladag (2023) examines accuracy of ChatGPT in terms of risk management for construction projects. This research indicates the potential applications of new technologies but does not provide conclusive evidence of the efficacy of traditional risk management approaches on IT projects in Sri Lanka. Barcaui and Monat (2023) examine the differences between project planning by generative artificial intelligence and by human project managers. The study is not directly about organising the technology-assisted planning of risk responses, but it is an important element in understanding technology-assisted planning. These differences highlight the necessity to distinguish the research on risk response practices from the research on technological tools that can help in risk management. This study focuses on organisational risk response practices and their relationship with IT Project Success.

2.2.4 Impact of early risk identification on project success

There are a number of possible reasons in the existing literature that may be relevant to why early risk identification might be linked to successful project outcomes. Aven (2016) highlights uncertainty and Bakker, Boonstra and Wortmann (2009) explore the importance of risk management for the success of IT projects in general. However, awareness of potential risks does not necessarily indicate that organizations possess the capabilities or resources required to manage them effectively. While identification of risk can enhance preparedness, its utility also relies on the assessment, communication, and response to that risk following such identification. Furthermore, most literature available examines risks and risk management as an organisational phenomenon. This limits the ability to distinguish the impact of early identification from project success, especially in Sri Lanka. PMBOK indicates the rationale for considering early identification as a specific risk management process. Therefore, the following hypothesis is formulated. H1a: Early Risk Identification has a significant positive relationship with IT Project Success in Sri Lanka.

2.2.5 Impact of risk response identification on project success

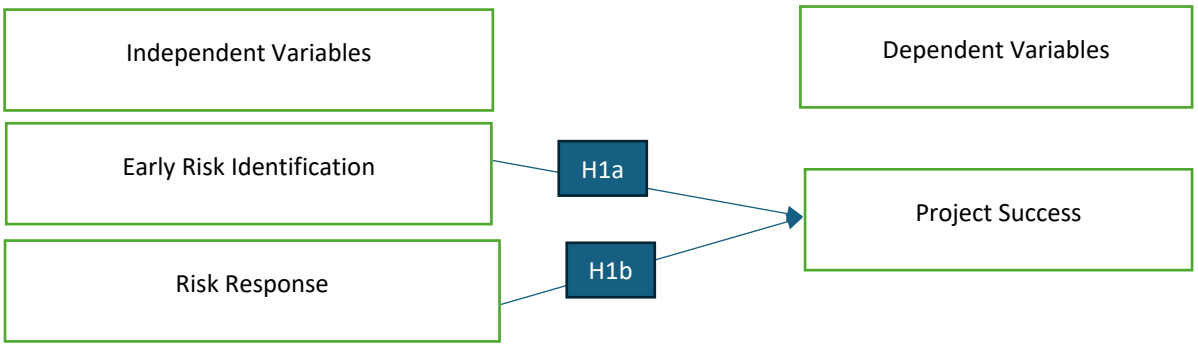
Bhoola, Hiremath and Mallik (2014) provide an industry-specific perspective on risk response strategies in software projects. Their research is relevant in that appropriate responses to identified threats could be an approach to managing project uncertainty. According to Javani and Rwelamila (2016) the risk management aspect within a developing country can be further explored through the study of IT projects in the South African public. However, Public-sector governance, institutional arrangements, and organisational resources, influence the immediate applicability of the results found in this study to IT organizations in Sri Lanka. The findings of these studies highlight the importance of examining risk response strategies within the specific organisational contexts. Furthermore, identifying potential risks and implementing effective responses to address them are two distinct processes. Organizations can be aware of potential threats but not take appropriate action to mitigate them. PMBOK is used to develop risk responses in a systematic way and Contingency Theory is the theory that explains how to respond to risks based on the project circumstances. Therefore, the following hypothesis is formulated.H1b**:** Risk Response has a significant positive relationship with IT Project Success in Sri Lanka.

2.3 Research gap

The studies emphasize the significance of risk management but provide limited empirical evidence on Sri Lankan IT projects. Javani and Rwelamila (2016) had analyzed the South African public-sector IT projects, and Kaufmann and Kock (2022) had explored the project management effort and the profitability. They may not be representative of Sri Lanka's organizational conditions. Accordingly, Koggalahewa and Abeysekera (2021) discussed project management methodologies, while Perera et al. (2014) discussed the risks in construction projects, which are less applicable for IT projects. While Schmidt (2023) investigated IT project failures, early identification of risk and risk response with project success have not been fully explored locally. To address this research gap, this study examines these relationships between the Sri Lankan IT professionals using PMBOK and Contingency Theory based cross sectional quantitative method.

3. Methodology

3.1 Conceptual Framework



Source: Author Construct, 2026

Figure 1: Conceptual Framework

3.2 Development of Hypothesis

3.2.1 Early risk identification

H1a: There is a relationship between Early Risk Identification and Project Success.

H0a: There is no relationship between Early Risk Identification and Project Success.

Risk Response

H1b: There is a relationship between Risk Response and Project Success.

H0b: There is no relationship between Risk Response and Project Success.

3.3 Operationalization of Variables

Table 2: Operationalization Table

Variable	Factors
Early Risk Identification	Importance of Risk Knowledge
	Role of Risk Knowledge in Mitigation
	Availability of Risk Knowledge Databases
	Use of Tools for Risk Knowledge Management
	Accessibility of Risk Management Knowledge
	Importance of Knowledge Sharing
Risk Response	Risk Management Implementation
	Systematic Approach in Risk Management
	Use of Internal Risk Procedures
	Internal Execution of Risk Management
	Full Risk Assessment at Project Commencement
Project Success	Timeliness of Project Completion
	Budget Compliance
	Project Scope Stability
	Achievement of Other Efficiency Measures

Source: Author Construct, 2026

3.4 Research Process

This research follows a positivist philosophy, which focuses on objective measurement and empirical evidence to analyses the relationship between early risk management and the success of IT projects. Deductive approach is used to test the hypothesis based on the existing literature and theories. The research adheres to the mono-method quantitative design, gathering quantitative data in the form of structured questionnaires and analyzing the data with the aid of SPSS. A survey plan is used to collect Likert-scale statements (usually standardized) on the responses of IT project managers and professionals in Sri Lanka. Lastly, cross-sectional time horizons will be used with data being gathered at a single point in time to explore existing relationships between Early Risk Identification, Risk Response, and IT Project Success.

3.5 Population, Sample Size and Sampling Method

The target group consisted of IT professionals from public and private sector projects in Sri Lanka, such as risk professionals, business analysts, project managers, executives and developers. The population was 50% and the targeted sample size was 384 respondents with 95% confidence level and 5% margin of error. A total of 374 valid responses were obtained, 97.39% of the targeted. The sampling used was non-probability convenience sampling, which was conducted through email and professional networks. Participants were selected based on availability and experience with IT projects. However, this method facilitated data collection from relevant IT professionals, and non-random selection may limit sample representativeness and the generalizability of findings to the wider population.

3.6 Questionnaire Development and Data Collection

A structured questionnaire was used to gather primary data which was distributed electronically under the help of email and professional networks to the private and public sector IT professionals in Sri Lanka. The questionnaire had 15 indicators which included Early Risk Identification (six), Risk Response (five) and IT Project Success (four). The indicators as per Aven (2016), Bhoola et al (2014) and Javani and Rwelamila (2016) were those related to the knowledge of risk, information sharing, risk management procedures, and project outcomes. Standardized answers were ensured by using closed-ended questions which measured Likert scales. The targeted respondents were 384 with 374 (97.39%) responding. The data obtained was coded and analyzed in SPSS to investigate the relationships between the three variables.

3.7 Validity and Reliability

Cronbach's alpha was used to check the reliability of the questionnaires. The internal consistency of the Early Risk Identification, Risk Response and IT Project Success was satisfactory ($\alpha = 0.931$, $\alpha = 0.848$ and $\alpha = 0.948$ respectively). Content validity was provided by the creation of indicators based on literature and research objectives. The lack of evidence for construct validity was constrained by the absence of expert validation and testing through pilot work and factor analysis. In addition, the risk knowledge and sharing determinants used to measure risk knowledge were the primary ones used to measure risk identification rather than the timing of risk identification, which could impact measurement accuracy.

3.8 Ethical Considerations

The study followed the ethical principles of voluntary participation, informed consent, confidentiality and anonymity. Participants were made aware of the research question, and the obtained data was only utilized for research. No personally identifiable information was disclosed when reporting the findings. The participation was voluntary and the respondents' identity was protected throughout the research. The research documentation provided is, however, not specific about the withdrawal deadline, the length of time for which data will be stored, the arrangements for storing the data and institutional ethics approval reference. They will need to be verified with the original research records prior to submission.

3.9 Data Analysis and Statistical Assumptions

The data collected from 374 respondents were analyzed using SPSS. Descriptive statistics, including means and standard deviations, were used to summaries the research variables, while Cronbach's alpha assessed internal consistency. Pearson correlation analysis examined the relationships between Early Risk Identification, Risk Response and IT Project Success. Multiple linear regression was employed to test the proposed hypotheses, with statistical significance established at $p < 0.05$. The regression model was specified as IT Project Success = $\beta_0 + \beta_1$(Early Risk Identification) + β_2(Risk Response) + ε

The reported regression results indicated that Early Risk Identification ($\beta = 0.564$, $p < 0.001$) and Risk Response ($\beta = 0.371$, $p < 0.001$) were significantly and positively associated with IT Project Success. The model explained 75.4% of the variance in project success ($R^2 = 0.754$). Regression assumptions, including linearity, residual normality, homoscedasticity, multicollinearity and influential observations, should be evaluated using residual plots, normal probability plots, tolerance, VIF and Cook's distance. As the available results do not document these diagnostic tests, their outcomes cannot yet be confirmed. The findings are interpreted as statistical associations rather than causal relationships because of the cross-sectional research design.

4. Data Analysis and Presentation

4.1 Actual Sample Description

The study of 374 respondents identified 374 valid responses out of a selected group of 384 respondents giving a high response rate of 97.39. This shows there was an effective turn-up of the targeted respondents. The high response rate also offers sufficient data to carry out a statistical analysis and test the relationships proposed between the research variables.

4.2 Testing Reliability

The reliability analysis demonstrated satisfactory internal consistency across all three measurement scales. Early Risk Identification recorded a Cronbach's alpha of 0.931, Risk Response recorded 0.848, and IT Project Success recorded 0.948. All coefficients exceeded the recommended threshold of 0.70, indicating acceptable reliability.

The scales comprised six, five and four indicators, respectively. However, reliability alone does not establish the validity of the measurement instruments.

4.3 Descriptive Analysis

The study obtained 374 valid responses from a targeted sample of 384 IT professionals in Sri Lanka, representing a response rate of 97.39%. The collected data were analyzed using SPSS to examine the relationships between Early Risk Identification, Risk Response and IT Project Succes.

4.4 Correlation Analysis

Pearson correlation analysis revealed statistically significant positive relationships between both independent variables and IT Project Success. Early Risk Identification demonstrated a strong positive correlation with project success ($r = 0.828$, $p < 0.001$). Similarly, Risk Response showed a strong positive correlation with project success ($r = 0.773$, $p < 0.001$). These findings indicate that higher reported levels of early risk identification and risk response were associated with higher levels of reported project success. However, the correlation between the two independent variables was not available in the reported results and requires confirmation using the SPSS output.

4.5 Regression Analysis

Multiple linear regression was conducted to examine the combined statistical associations of Early Risk Identification and Risk Response with IT Project Success. The model demonstrated substantial explanatory power, with $R = 0.868$, $R^2 = 0.754$ and adjusted $R^2 = 0.752$. The standard error of the estimate was 0.26914. These results indicate that the two independent variables collectively explained 75.4% of the observed variance in IT Project Success. The ANOVA results indicated that the overall regression model was statistically significant, $F(2, 371) = 567.832$, $p < 0.001$. Early Risk Identification demonstrated a statistically significant positive association with IT Project Success ($B = 0.505$, $\beta = 0.564$, $t = 15.338$, $p < 0.001$). Risk Response also demonstrated a significant positive association ($B = 0.341$, $\beta = 0.371$, $t = 10.104$, $p < 0.001$). The larger standardized coefficient for Early Risk Identification indicates that it had a stronger conditional association with project success within the fitted model.

Table 3: Summary of Hypothesis

H	Hypotheses	T	P	Status
H1a	There is a relationship between Early Risk Identification and Project Success	15.338	0.000	Accepted
H1b	There is a relationship between Risk Response and Project Success	10.104	0.000	Accepted

Source: Author Construct, 2026

5. Discussion

5.1 Summary of Findings

5.1.1 Relationship between early risk identification and project success

There is a strong positive correlation between Early Risk Identification and IT Project Success ($r = 0.828$) ($B = 0.505$, $p < 0.001$). Early identification enables managers to expect problems, to reduce disruptions, to increase project planning, to increase stakeholder involvement and to match project activities with organisation goals, thus increasing project success.

5.1.2 Impact Of Risk Response Strategies on IT project success

The coefficient of Risk Response and IT Project Success is 0.773, which shows a strong positive correlation, and the B value is 0.341 with a significant positive correlation (p value < 0.001). Successful avoidance, mitigation, transfer and acceptance methods build project resilience, minimise potential losses, make projects more economical and on schedule, and enhance the overall IT project.

5.1.3 Improving early risk management frameworks to enhance project success

Structured procedure, flexibility, continuous monitoring and engaging stakeholders is an effective approach to in which early risk management frameworks can be enhanced. Systematic identification, assessment, response, and monitoring of risks is supported by PMBOK, Contingency Theory and Stakeholder Theory. Incorporating

these practices into project work can enhance preparedness, teamwork, flexibility, risk management, and project success in general.

5.1.4 Role of technology in enhancing early risk management effectiveness

Technologies enhance early risk management by facilitating speedier risk identification, assessment, evaluation, monitoring and mitigation. Decision making and planning are enhanced with digital dashboards, data visualization, predictive analytics, simulations and risk management software. With the backing of TAM, ISO 31010 and the PMBOK, effective technology adoption can help prevent project delays and failures and promote project success.

6. Conclusion and Implications

6.1 Summary of Research Outcome

It is concluded from the study that Early Risk Identification and Risk Response is a significant factor that increases the success of IT projects in Sri Lanka. Good risk management improves delivery time, sticking to budgets, standard of work and satisfaction of stakeholders. To address these challenges, and to enhance training, technology uptake, governance, stakeholder engagement and proactive risk management, organizations should improve their ability.

6.2 Recommendations

Risk registers, stakeholder consultation, and SWOT analysis should be incorporated into Sri Lankan IT organizations and PMBOK and ISO 31000 frameworks should be adopted. It is recommended that continuous professional training, dynamic cybersecurity strategies, improved governance, technological assistance and cross-functional engagement of stakeholders are recommended to enhance risk management and project resilience (Freeman, Dmytriyev and Phillips, 2021).

6.3 Delimitations and Future Research

The study is confined to a specific context of IT projects in Sri Lanka and relies on cross sectional quantitative research methodology with special concern to Early Risk Identification and Risk Response. Research in the future should go in the direction of longitudinal, qualitative, mixed methods and include the following elements: organizational culture, stakeholder relationships, artificial intelligence, predictive analytics, and comparisons with international studies.

Acknowledgement

The researcher gratefully acknowledges the guidance and support provided by the academic supervisor and institution throughout this study. Special appreciation is extended to all IT professionals who participated in the survey and contributed valuable information. Gratitude is also expressed to colleagues, friends, and family members for their encouragement and support throughout the research process.

Ethics Declaration: The study was carried out following the proper ethical principles of the research. The data was collected through voluntary participation, and the respondents were informed about the purpose of the study. The confidentiality and anonymity of the participants were ensured and the data collected was only used for academic research. No personally identifiable information was released in reporting the finding.

AI Declaration : Some support in refining the language, grammar, structure and presentation of the research was provided using Generative Artificial Intelligence (AI) tools. Research data, participants and statistical results and findings were not fabricated using AI tools. The researcher has read and confirms the final content and assumes responsibility for its accuracy, originality and academic integrity.

References

Ahmad, U., Hussain, M., Khan, A.A. and Huraira, A. (2022). Impact of project risk management and leadership development on the project success with moderating role of risk manager. *Journal of Business and Social Review in Emerging Economies*, 8(2), pp.481–494. doi:10.26710/jbsee.v8i2.2316.

Aladağ, H. (2023). Assessing the accuracy of ChatGPT use for risk management in construction projects. *Sustainability*, [online] 15(22), p.16071. doi:10.3390/su152216071.

Alshehhi, A., Mat and Rozali, E.A. (2024). The impact of risk management on the performance of construction projects. doi:10.53555/kuey.v30i5.3708.

Aven, T. (2016). Risk assessment and risk management: Review of recent advances on their foundation. *European Journal of Operational Research*, [online] 253(1), pp.1–13. doi: https://doi.org/10.1016/j.ejor.2015.12.023.

Bakker, K., Boonstra, A. and Wortmann, H. (2009). Does risk management contribute to IT project success? A meta-analysis of empirical evidence. *International Journal of Project Management*, [online] 28(5), pp.493–503. doi: 10.1016/j.ijproman.2009.07.002.

Balasubramaniam, V.S., Mahadik,, S., Khair, M.A., Goel, O. and Jain,, Prof.Dr.A. (2023). Effective risk mitigation strategies in digital project management. *Innovative Research Thoughts*, 9(1), pp.538–567. doi:10.36676/irt.v9.i1.1500.

Barcauí, A. and Monat, A. (2023). Project planning by generative artificial intelligence and human project managers: A comparative study. *Project Leadership and Society*, 4(1), p.100101. doi:10.1016/j.plas.2023.100101.

Bhoola, V., Hiremath, S.B. and Mallik, D. (2014). An assessment of risk response strategies practiced in software projects. *Australasian Journal of Information Systems*, [online] 18(3). doi:10.3127/ajis.v18i3.923.

Bloch, M., Blumberg, S. and J. Laartz (2012). Delivering large-scale IT projects on time, on budget, and on value. *McKinsey Quarterly*, [online] 27, pp.2–7. Available at: https://www.researchgate.net/publication/285851331_Delivering_large-scale_IT_projects_on_time_on_budget_and_on_value [Accessed 29 Sept. 2026].

Espíndola, O.R., Chowdhury, S., Dey, P.K., Albores, P. and Emrouznejad, A. (2022). Analysis of the adoption of emergent technologies for risk management in the era of digital manufacturing. *Technological Forecasting and Social Change*, [online] 178(1), p.121562. Available at: https://www.sciencedirect.com/science/article/pii/S0040162522000944 [Accessed 29 Sept. 2026].

Freeman, R.E., Dmytriyev, S.D. and Phillips, R.A. (2021). Stakeholder theory and the resource-based view of the firm. *Journal of Management*, 47(7), pp.1757–1770. doi:https://doi.org/10.1177/0149206321993576.

Ibrahim, N., Ebele, E., Efunniyi, N.C.P., Osundare, N.O.S. and Oziegbe, H. (2024). The future of project management in the digital age: Trends, challenges, and opportunities. *Engineering Science & Technology Journal*, 5(8), pp.2632–2648. doi:10.51594/estj.v5i8.1516.

Jada, I. and Mayayise, T.O. (2023). The impact of artificial intelligence on organisational cyber security: An outcome of a systematic literature review. *Data and Information Management*, [online] 8(2), pp.100063–100063. doi:10.1016/j.dim.2023.100063.

Javani, B. and Rwelamila, P.M.D. (2016). Risk management in IT projects – a case of the South African public sector. *International Journal of Managing Projects in Business*, 9(2), pp.389–413. doi:10.1108/ijmpb-07-2015-0055.

Jayasekara, B.E.A. (2023). Impact of financial capability on financial stress of small and medium entrepreneurs in Sri Lanka: Special reference to the western province. *Kelaniya Journal of Management*, [online] 12(2), pp.21–52. doi:10.4038/kjm.v12i2.7735.

Jayasinghe, N., Fernando, S., Haigh, R., Amaratunga, D., Fernando, N., Vithanage, C., Ratnayake, J. and Ranawana, C. (2022). Economic resilience in an era of 'systemic risk': Insights from four key economic sectors in Sri Lanka. *Progress in Disaster Science*, [online] 14, p.100231. doi:10.1016/j.pdisas.2022.100231.

Kaufmann, C. and Kock, A. (2022). Does project management matter? The relationship between project management effort, complexity, and profitability. *International Journal of Project Management*, [online] 40(6), pp.624–633. doi:https://doi.org/10.1016/j.ijproman.2022.05.007.

Koggalahewa, L. and Abeysekera, R. (2021). Understanding the project management methodology selection and implementation process in Sri Lankan software industry. *Sri Lanka Journal of Management Studies*, [online] 3(1), pp.1–18. doi:10.4038/sljms.v3i1.62.

Lopes, L. and Mañas, A.V. (2013). Delays in IT projects caused by failures in the management of stakeholders. *Future Studies Research Journal: Trends and Strategies*, 5(2), pp.155–186. doi:10.7444/fsrj.v5i2.116.

Perera, B.A.K.S., Rameezdeen, R., Chileshe, N. and Hosseini, M.R. (2014). Enhancing the effectiveness of risk management practices in Sri Lankan road construction projects: A Delphi approach. *International Journal of Construction Management*, 14(1), pp.1–14. doi:10.1080/15623599.2013.875271.

Schmidt, J.M. (2023). Mitigating risk of failure in information technology projects: Causes and mechanisms. *Project Leadership and Society*, [online] 4. Available at: https://www.sciencedirect.com/science/article/pii/S2666721523000182 [Accessed 29 Sept. 2026].

Tsuchida, R. and Takeda, S. (2021). Is resilience socially emerging or embedded? A review of "resilience" under climate change in Sri Lanka. *Journal of Safety Science and Resilience*, 2(4), pp.258–266. doi:10.1016/j.jnlssr.2021.11.001.

ESG Integration in Banking Strategy and Reporting: Evidence from the Slovak Banking Sector

Nina Majerovičová and Ján Papula
Faculty of Management, Comenius University in Bratislava, Slovakia

majerovicova3@uniba.sk
jan.papula@fm.uniba.sk

Abstract: The integration of Environmental, Social and Governance factors into the banking sector has become an increasingly important topic as regulatory requirements expand, investor expectations evolve and sustainability risks become more financially material. This paper explores how ESG considerations are reflected in strategic decision making, risk management and credit evaluation within banks, with a particular focus on the Slovak banking sector operating under the European regulatory environment. The study is based on qualitative research using structured interviews with ESG specialists and professionals from banking institutions in Slovakia. The aim is to better understand how formal ESG requirements, especially those linked to the Corporate Sustainability Reporting Directive, are translated into everyday banking practice. The analysis focuses on identifying the key motivations behind ESG adoption, the main challenges institutions face during implementation and the extent to which ESG factors are actually embedded in core business processes. The results show that ESG is gradually moving beyond a purely regulatory obligation and is increasingly perceived as a relevant part of long term strategy. Banks recognize its importance for managing emerging risks, strengthening their reputation and responding to stakeholder pressure. At the same time, the practical implementation of ESG remains uneven. A lack of consistent data, limited internal expertise and the absence of unified methodologies make it difficult to fully integrate ESG into decision making. Reporting activities are often seen as complex and resource demanding, even though they contribute to greater transparency. The findings also indicate that ESG factors are beginning to influence credit assessment, particularly in relation to green financing and the evaluation of sector specific risks. However, their use is not yet systematic, which points to a gap between regulatory expectations and actual practice. The paper contributes empirical insight from a less frequently studied regional context and highlights the need for stronger internal capabilities, better data management and a more strategic approach to ESG integration in banking.

Keywords: ESG factors, Banking strategy, Sustainability reporting, Credit risk, Sustainable finance

1. Introduction

The integration of Environmental, Social, and Governance (ESG) factors has evolved from a niche corporate social responsibility concept into a major trend reshaping business strategies. Recognizing that ESG considerations affect financial performance and long-term reputation, companies are increasingly moving beyond profit maximization toward sustainability (Pathak, 2024). This shift is driven by growing investor demand for sustainable investments, making ESG a mainstream investment strategy (Krantz, 2024). ESG criteria also cover diverse risks, including climate, social, governance, and transparency issues that require integration into strategic decision-making (Oliver Yébenes, 2024). As a result, ESG adoption enhances innovation, productivity, and organizational resilience through broader stakeholder engagement (Cabaleiro-Cerviño, Mendi, 2024).

Within this transition, the financial and banking sectors play a crucial role. Sustainable business practices must align with broader objectives such as the UN Agenda 2030 and Slovakia 2030 strategy (MIRRI SR, 2020). According to the European Banking Authority, climate, environmental, and social challenges are driving structural economic changes that significantly affect the financial system. Banks therefore play a key role in financing the transition to a sustainable economy and managing ESG-related risks. Through lending, investment, and advisory activities, they influence capital allocation and the achievement of national and international sustainability goals (EBA, 2022).

1.1 Problem Statement

To support the transition toward sustainability, the European Union has introduced increasingly stringent regulatory frameworks (European Commission, 2025). A key milestone was the replacement of the Non-Financial Reporting Directive (NFRD) with the more comprehensive Corporate Sustainability Reporting Directive (CSRD) in 2023. Together with the European Sustainability Reporting Standards (ESRS), the CSRD requires detailed sustainability disclosures based on the principle of double materiality, addressing both a company's environmental impact and the financial risks arising from ESG factors (EFRAG).

Despite clear expectations from regulators such as the EBA and the ECB, integrating ESG into daily banking operations remains challenging. Environmental risks affect traditional credit, market, and operational risks, yet

available ESG metrics are often underdeveloped, complicating systematic risk management (Bruno, Lagasio, 2021). The ECB (2020) highlights that extreme weather events and climate-related policies can disrupt business models, reprice assets, and reduce collateral values, thereby increasing financial risks. Although ESG factors increasingly influence borrower creditworthiness, inconsistent data and limited standardization hinder their effective incorporation into credit ratings (S&P Global Ratings, 2023).

In practice, ESG implementation remains uneven across the banking sector. Banks face significant barriers, particularly the lack of reliable and standardized ESG data from corporate clients. Integrating ESG into established banking processes also requires substantial technological investment and coordination across multiple departments. Consequently, compliance activities, including CSRD reporting, are often viewed as resource-intensive and complex. While ESG considerations are becoming more important in lending decisions, especially in green finance, their application is not yet fully systematic, revealing a gap between regulatory expectations and banks' operational capabilities.

1.2 Objective

In light of the evolving regulatory landscape and significant implementation challenges, this paper analyzes how formal ESG requirements are reflected in strategic decision-making, risk management, and credit evaluation within the banking sector. It focuses particularly on the Slovak banking sector, offering empirical insights from a less frequently studied regional context operating under the broader European regulatory framework. By combining theoretical insights from key authors and European regulatory institutions with qualitative data from structured interviews with ESG specialists in Slovakia, the research examines the extent to which ESG factors are embedded in core business processes.

Ultimately, the paper aims to identify the main drivers of ESG adoption, critically assess operational and data-related barriers to implementation, and highlight the need for stronger internal capabilities and a more strategic approach to sustainable finance.

2. Literature Review

2.1 ESG Reporting and European Regulation

Driven by regulatory and stakeholder pressure, sustainability reporting is now a key imperative. The EU leads this transition through frameworks requiring companies to account for their environmental and social impacts (European Commission, 2025). A major milestone was the 2014 Non-Financial Reporting Directive (NFRD), requiring large public-interest entities to disclose information on environmental, social, human rights, and anti-corruption matters (European Union, 2014). Companies used various reporting frameworks under a "comply or explain" principle (Hirsch & Heichl, 2025).

However, the NFRD was criticized for inconsistencies and limited comparability, restricting its effectiveness (Myrén, 2025). In response, the EU introduced the 2023 Corporate Sustainability Reporting Directive (CSRD), significantly expanding scope and requirements. It covers large EU firms and non-EU companies with over €150 million in the EU market (European Commission, 2025), aligning with the Sustainable Finance Disclosure Regulation (SFDR) and EU Taxonomy (European Parliament, 2022).

To implement the CSRD, the European Financial Reporting Advisory Group (EFRAG) developed the European Sustainability Reporting Standards (ESRS), creating a standardized, data-driven process with mandatory audits (Operato et al., 2025). A core element is the double materiality principle, requiring firms to assess both environmental/social impacts and financial sustainability risks (Myrén, 2025).

2.2 Regulatory Framework for Banks

The structural economic shifts driven by climate change, environmental degradation, and social inequalities significantly impact the entire financial system. As a result, the European banking sector operates under a highly developed ESG regulatory framework led by the European Banking Authority (EBA) and the European Central Bank (ECB) (European Banking Authority, 2022). The financial sector plays a dual role: it is essential for financing the transition to a low-carbon economy while also managing emerging risks linked to ESG factors (European Banking Authority, 2022).

The EBA has developed a Roadmap on Sustainable Finance built on three pillars. The first enhances transparency through expanded disclosure requirements, including the Green Asset Ratio (GAR), which measures the share of sustainable assets in a bank's portfolio (Bruno & Lagasio, 2021; European Banking Authority, 2022). The second focuses on risk management, requiring banks to integrate ESG risks into

governance and risk frameworks under supervisory review and climate stress-testing. The third examines potential prudential treatments, assessing whether capital requirements should reflect long-term environmental and social risks (European Banking Authority, 2022). As illustrated in detail in Table 1, the EBA Roadmap serves not merely as a general strategic document but as a comprehensive regulatory mechanism divided into three logical pillars:

Table 1: The EBA Roadmap on Sustainable Finance

Pillar	Focus Area	Key Objectives	Key Regulatory/Supervisory Tools
Pillar 1	Transparency & Market Discipline	Enhance disclosure requirements (including Pillar 3 disclosures, SFDR, and EU Taxonomy alignment) to improve market information.	Pillar 3 disclosures, SFDR, and EU Taxonomy alignment.
Pillar 2	Supervision	Integrate ESG risks into supervisory frameworks to ensure institutions identify and manage these risks effectively.	Supervisory Review and Evaluation Process (SREP), climate stress testing.
Pillar 3	Prudential Requirements	Analyze how ESG risks are embedded in current prudential regulation and assess if capital requirements should reflect long-term risks.	CRR/CRD amendments, prudential treatment of environmental and social risks.

Source: EBA (2022)

Complementing this, the ECB's 2020 Guide on climate-related and environmental risks sets supervisory expectations for eurozone banks. It requires institutions to assess how these risks affect business strategies across short-, medium-, and long-term horizons (European Central Bank, 2020). Banks must also develop ESG key performance indicators (KPIs), apply scenario analysis, and integrate climate risk considerations into governance, credit policies, and overall risk management (European Central Bank, 2020).

Beyond sector-specific banking regulation, the European Union has expanded its sustainability governance framework through the Corporate Sustainability Reporting Directive (CSRD, 2022) and the Corporate Sustainability Due Diligence Directive (CSDDD, 2024). As highlighted in Table 2, the directives are complementary: the CSRD establishes the basis for reporting and transparency, whereas the CSDDD sets the requirements for operational due diligence and corporate accountability.

Table 2: Comparison of CSRD and CSDDD

Feature	CSRD	CSDDD
Primary Goal	Enhancing corporate transparency through standardized sustainability disclosures.	Identifying, preventing, mitigating, and accounting for adverse human rights and environmental impacts.
Core Mechanism	Mandatory reporting under European Sustainability Reporting Standards (ESRS).	Due diligence obligations integrated into corporate policies and risk management systems.
Scope	Broad application to large EU undertakings and certain non-EU companies; requires double materiality.	Focused on large companies with significant turnover and high-risk sectoral activities; phased implementation.
Focus	Disclosure of sustainability information; ensuring audit-ready, comparable data.	Operational accountability; addressing adverse impacts across the value chain.
Legal Nature	Reporting and disclosure directive.	Substantive due diligence obligation and liability framework.

Source: CSRD (2022), CSDDD (2024)

However, the Corporate Sustainability Due Diligence Directive has undergone substantial revision following the adoption of the EU Omnibus simplification package, which aims to strengthen European competitiveness and

reduce regulatory burdens. The reforms narrowed the scope of the CSDDD, increased the applicability thresholds, reduced indirect compliance effects on smaller entities, and postponed implementation timelines, with the practical application of many requirements now expected toward 2029. These developments reflect a broader shift in EU policymaking toward balancing sustainability objectives with economic competitiveness and regulatory simplification (Corporate Sustainability Due Diligence Directive, 2026).

2.3 Credit Evaluation and ESG

While ESG criteria assess an entity's environmental, social, and governance performance, not all ESG factors are immediately financially material. In banking, "ESG credit factors" refer specifically to variables that significantly affect a borrower's creditworthiness, particularly their ability and willingness to meet financial obligations (S&P Global Ratings, 2023). ESG risks are not treated as standalone categories but as transversal risks that interact with and amplify traditional credit, market, operational, and liquidity risks (European Banking Authority, 2022).

According to ECB guidelines, environmental risks operate through physical and transition channels (European Central Bank, 2020). Physical risks stem from extreme weather events and long-term climate shifts, affecting Probability of Default (PD) and Loss Given Default (LGD). For example, floods can reduce real estate collateral values, while droughts can eliminate agricultural revenues, weakening repayment capacity (European Central Bank, 2020; Bruno & Lagasio, 2021).

Transition risks arise from the shift to a low-carbon economy, including policy changes, technological developments, and market shifts. Higher compliance costs, such as carbon pricing or energy efficiency requirements, can reduce profitability and increase default risk, while also causing asset repricing and potential stranded assets, creating market and liquidity risks (European Central Bank, 2020).

Social and governance factors also influence credit assessment. Social risks include labor practices, health and safety issues, and reputational controversies, which can directly affect financial performance (S&P Global Ratings, 2023). Governance factors cover risk management, transparency, oversight quality, and cyber-risk controls. Overall, ESG integration reshapes credit evaluation by requiring banks to assess not only current financial strength but also long-term resilience and adaptability.

3. Methodology

3.1 Research Approach

To fulfill the research objectives, this study adopts a qualitative research design aimed at comparing established theoretical frameworks and regulatory requirements with actual banking practice. The primary focus is to examine the practical application of ESG principles within the Slovak banking sector, particularly their impact on strategic decision-making, credit evaluation, risk management, and sustainability reporting. By employing a qualitative approach, the study bridges the gap between high-level European regulatory expectations such as the Corporate Sustainability Reporting Directive and the day-to-day operational realities of financial institutions. This methodological framework enables an in-depth exploration of the nuances, underlying motivations, and internal mechanisms driving ESG integration, moving beyond quantitative indicators to understand the "how" and "why" of the transition toward sustainable finance.

3.2 Data Collection

The primary empirical data for this study were collected through structured interviews with ESG specialists, sustainability managers, and responsible professionals from three banking institutions operating in Slovakia. To ensure a well-prepared and structured discussion, the interview questions were sent to respondents in advance. Data collection combined face-to-face meetings at bank headquarters with online video conferences, depending on participant availability and preference.

To ensure data integrity and encourage open and honest discussion of internal challenges, all interviews were recorded, fully transcribed, and anonymized. To enhance the trustworthiness and validity of the research, the study utilized member checking, allowing participants to review and approve their transcribed interviews.

3.3 Data Analysis

Following the data collection phase, the transcribed interviews were subjected to qualitative content analysis. This method was selected to systematically identify recurring themes, patterns, and operational challenges related to ESG implementation across the participating banking institutions. The anonymized responses were

categorized and cross-compared to highlight both shared characteristics, such as widespread difficulties in obtaining corporate client data, and differences in how individual banks structure ESG governance and educational initiatives.

In addition to content analysis, the study applied comparative analysis (contrasting theoretical frameworks with practical realities), alongside inductive and deductive reasoning and synthesis. This multi-layered analytical approach enabled a comprehensive assessment of how ESG theory translates into banking practice. Ultimately, the synthesis of findings supported the formulation of evidence-based recommendations, offering insights not only for the banking sector but also for other organizations preparing for the requirements of ESG reporting under the CSRD.

4. Results

4.1 Strategic Shift in Banking

The qualitative analysis of the Slovak banking sector indicates that ESG integration has evolved beyond a mere compliance exercise into an essential pillar of long-term strategy, risk mitigation, and sustainable business development. Banks are now proactively positioning themselves to finance the large-scale decarbonization and complex economic transformation required in the coming decades, aiming to capture significant investment flows linked to the global low-carbon transition.

This strategic shift is fundamentally tied to corporate reputation and stakeholder trust. While banks recognize that a strong ESG profile enhances brand value and market attractiveness, respondents emphasized the absolute necessity of avoiding greenwashing. Participants stressed that robust internal processes, integrated data systems, and comprehensive risk management frameworks must always precede external communication to ensure credibility.

Regarding priorities, banks focus on achieving carbon neutrality in financed portfolios by 2050 and reducing their own environmental footprint, despite practical constraints such as infrastructure and retrofitting costs. On the social dimension, institutions prioritize accessibility and inclusion, emphasizing employee well-being through flexible working arrangements and meaningful community-oriented initiatives.

4.2 Internal Barriers and Implementation Challenges

Translating strategic ESG goals into automated banking operations faces internal barriers, particularly the shift from centralized teams to cross-departmental integration. Overcoming organizational inertia while balancing ESG with routine was a primary leadership challenge.

The most critical obstacle is a lack of consistent, high-quality ESG data. As corporate clients often struggle to provide necessary metrics, banks rely on uncertain proxy data, which impairs risk model accuracy, a gap experts estimate will persist for approximately five years. This data scarcity complicates the CSRD reporting process, which is highly resource-intensive and requires 1.5 to 2 years of preparation to ensure audit-readiness.

To mitigate these challenges, banks are investing in multi-level training, ranging from specialized sustainability certifications to role-specific guidance. Furthermore, to reinforce accountability, ESG performance metrics are increasingly integrated into senior management remuneration and bonus structures.

4.3 Integration of ESG into Credit Risk Management

The integration of ESG factors has fundamentally reshaped modern credit risk assessment, as banks now treat environmental and social considerations as critical transversal risks that actively amplify traditional credit, market, and operational vulnerabilities. This paradigm shift directly impacts key financial metrics, most notably the Probability of Default (PD) and Loss Given Default (LGD), which are increasingly sensitive to sustainability-related variables.

This interaction is most prominent through the interplay of transition and physical risks. Transition risks, exemplified by rising carbon costs and regulatory shifts, compress profit margins within carbon-intensive sectors, while physical climate hazards, such as frequent floods or prolonged droughts, directly impair a borrower's long-term repayment capacity. Consequently, financial institutions have adopted more conservative collateral assessment frameworks, systematically factoring in geographical climate exposure and requiring specific energy performance certificates for real estate assets.

Beyond mere risk management, banks are increasingly leveraging green financing to actively support clients with credible transition potential, precisely aligning these financial products with the EU Taxonomy and sophisticated internal ESG scoring models. These ESG-linked loans are subject to rigorous annual reviews, where instances of non-compliance may trigger pre-defined financial consequences, thereby ensuring that sustainability commitments remain an enduring and integral component of the entire credit lifecycle.

5. Discussion

5.1 Comparing Theory with Practice

A central objective of this research was to compare established theoretical frameworks on Environmental, Social, and Governance (ESG) principles with operational realities in the banking sector. Theoretical literature suggests that ESG-oriented firms do not merely respond to compliance requirements but proactively adopt ethical and sustainable practices that consider a broad range of stakeholders, including employees, clients, suppliers, and local communities. The qualitative findings from the Slovak banking sector strongly support this view. ESG is no longer perceived as a marginal or purely regulatory issue but has been integrated into core long-term business strategies. Banks recognize that their ESG approach directly influences their risk profile, innovation capacity, and ability to build long-term trust with investors and the public.

Theoretical models further argue that firms with strong stakeholder engagement and ESG integration demonstrate higher absorptive capacity, which enhances innovation performance. In banking practice, this is reflected in the development of new financial products supporting economic transformation and decarbonization. Given the scale of capital reallocation required for the transition to a low-carbon economy, banks are actively innovating through green loans, ESG-linked financial instruments, and advisory services that support clients' sustainability transitions. This innovation drive also extends internally, as banks optimize energy use, shift toward renewable energy sources, and redesign infrastructure to improve social inclusion and accessibility.

Another key theoretical concept concerns the nature of ESG risks. Academic literature and European regulatory frameworks, including those of the EBA and ECB, emphasize that climate, environmental, and social risks fundamentally reshape traditional financial risk structures. The empirical findings confirm that Slovak banks adopt this perspective, treating ESG not as isolated risk categories but as transversal risks that interact with and amplify credit, market, and operational risks. For example, a corporate client's failure to decarbonize is assessed as a future credit risk due to expected increases in emission-related costs.

However, while alignment between theory and strategic-level practice is strong, the study also reveals variation in the depth and pace of implementation. Strategic planning, governance frameworks, and social policies have been implemented relatively quickly. In contrast, the systematic integration of environmental metrics into highly automated credit pricing and risk models is progressing more slowly. This is largely due to the complexity of translating qualitative environmental risks and forward-looking climate scenarios into precise, quantifiable inputs that can be processed within existing banking systems. The following overview serves to provide a clearer comparison between the established theoretical frameworks and the operational reality in the Slovak banking sector.

Table 3: ESG theory vs. Slovak banking practice

Dimension	Theoretical ESG frameworks	Slovak banking sector practice
ESG approach	Proactive, value-driven integration beyond compliance.	ESG increasingly embedded in core strategy and governance.
Stakeholder focus	Broad stakeholder orientation (employees, clients, suppliers, communities).	Strong stakeholder consideration reflected in ESG policies and communication.
Innovation role	ESG enhances absorptive capacity and innovation performance.	Development of green loans, ESG-linked products, and sustainability advisory services.
Risk perspective	ESG risks are systemic and interact with financial risks.	ESG treated as transversal risk affecting credit, market, and operational risk.
Climate transition risk	Emphasis on forward-looking assessment of environmental transition.	Clients' decarbonization progress integrated into credit risk evaluation.

Dimension	Theoretical ESG frameworks	Slovak banking sector practice
Implementation depth	Fully integrated ESG embedded across decision systems.	Strategic and governance integration is strong; operational modelling is still developing.
Key limitation	Theoretical models assume full quantification of ESG risks.	Difficulty in translating environmental risks into automated pricing and risk models.

5.2 The Implementation gap

While theoretical alignment is evident at the institutional level, a clear "implementation gap" emerges in banks' interactions with the broader real economy. A marked discrepancy exists between the highly developed internal ESG strategies of banks and the actual readiness of their corporate clients. Within financial institutions, ESG governance is well established: ESG key performance indicators (KPIs) are linked to board remuneration, specialized ESG committees monitor progress, and significant resources are allocated to preparing Corporate Sustainability Reporting Directive (CSRD) disclosures. In addition, banks leverage the expertise of their international parent companies to build internal capabilities and align with global frameworks such as the Net Zero Banking Alliance.

Outside the banking sector, however, conditions differ substantially. The most critical aspect of this implementation gap is the lack of consistent, structured, and high-quality ESG data in the Slovak market. Effective ESG integration into credit risk management depends on primary data from borrowers, including carbon footprints, energy efficiency metrics, and supply chain exposure. Yet many corporate clients lack the knowledge, capacity, or willingness to collect and disclose such information. As a result, banks often rely on industry-average proxy data to estimate financed emissions and risk exposures. While this approach provides a temporary solution, it introduces significant uncertainty into risk models and limits the precision of ESG integration in credit decisions. Industry estimates suggest that it may take at least five years for the market to mature sufficiently to provide reliable and standardized ESG data.

This gap is further reinforced by the socio-political context of the Slovak market. The findings indicate that ESG is still widely perceived among domestic firms as a bureaucratic obligation rather than a strategic opportunity. This perception is reinforced by limited systemic support and relatively weak political emphasis on the green transition. Consequently, banks often assume an educational role. They cannot impose strict ESG requirements immediately, as doing so or excluding non-compliant clients would risk driving them to competitors without achieving real environmental progress.

To address this challenge, banks adopt a pragmatic transitional approach. Rather than relying solely on exclusionary policies, they use green and transition financing to support carbon-intensive clients that demonstrate credible willingness to transform. By linking financing conditions to the achievement of defined sustainability targets, banks maintain commercial viability while gradually encouraging the real economy toward higher ESG standards. This approach highlights that, although a significant implementation gap persists, banks are actively using their position within the financial system to help close it over time.

6. Conclusion and Practical Recommendations

The integration of ESG factors into the banking sector has fundamentally moved beyond its original role as a regulatory compliance requirement. This study shows that financial institutions in the Slovak market now regard ESG as an essential pillar of long-term strategic planning, risk management, and corporate identity. Banks are actively adapting their core operations to facilitate the transition toward a low-carbon, sustainable economy, recognizing that financing this transformation also creates significant business opportunities. By embedding ESG into credit evaluation and treating environmental and social vulnerabilities as transversal risks that amplify traditional credit, market, and operational risks, banks are reshaping how corporate viability and collateral are assessed.

However, the practical application of these frameworks remains uneven, largely due to a persistent implementation gap between the high internal readiness of banks and the limited preparedness of the broader corporate sector. The most significant barrier is the lack of consistent, standardized, and high-quality ESG data from corporate clients, which often forces banks to rely on proxy estimates and introduces uncertainty into risk models. Despite these challenges, banks are adopting a pragmatic approach. Rather than withdrawing financing from carbon-intensive industries, they increasingly use green financing and ESG-linked loans to encourage and monitor clients' transition toward sustainability.

6.1 Recommendations for Practice

As synthesized in Table 4, the following recommendations offer a structured framework for large undertakings to navigate the complexities of CSRD implementation. These guidelines emphasize that successful integration requires moving beyond mere regulatory compliance toward deep operational and strategic alignment across all core business functions.

Table 4: Recommendations for Practice

Recommendation	Description	Operational Focus
Early Preparation	Start data infrastructure and reporting systems at least 12 months before deadlines.	System setup & data collection
Cross-Departmental Integration	Ensure coordinated cooperation across Finance, HR, Risk, and IT.	Governance & internal alignment
Strategic Transparency	Avoid greenwashing by ensuring external communication reflects only verified practices.	Credibility & audit-readiness
Tool for Self-Reflection	Use CSRD reporting to identify operational weaknesses and improve resource efficiency.	Strategy & competitive advantage
Proactive Resilience	Treat ESG as a long-term strategic commitment regardless of short-term regulatory shifts.	Risk management & adaptability

6.2 Research Limitations

Although this study provides valuable empirical insights, it has limitations. The qualitative analysis is based on a localized sample of three major banking institutions operating in Slovakia. While the core mechanisms of ESG integration are broadly applicable, specific socio-political conditions and the pace of implementation may not be fully generalizable to other countries or sectors. Future research should include comparative, cross-sectoral analyses to better understand ESG implementation dynamics across different industries.

Acknowledgements

This research was supported by the Grant Agency of Comenius University under Grant No. UK/1259/2026.

Ethics Declaration: The research involved interviews with human participants. Participation was voluntary, and informed consent was obtained from all interviewees prior to data collection. The data were processed in accordance with ethical standards, ensuring anonymity and confidentiality.

AI Declaration: Generative AI tools were used during the preparation of this paper solely for supportive purposes. Specifically, they were used for outlining the paper's structure, summarizing academic sources, refining language and style, and assisting with the formatting of tables.

References

Bruno, M. and Lagasio, V. (2021) 'An overview of the European policies on ESG in the banking sector', Sustainability, 13(22), 12641. Available at: https://doi.org/10.3390/su132212641.

Cabaleiro-Cerviño, G. and Mendi, P. (2024) 'ESG-driven innovation strategy and firm performance', Eurasian Business Review, 14(1), pp. 137–185. Available at: https://doi.org/10.1007/s40821-024-00254-x.

Corporate Sustainability Due Diligence Directive (2026) Important 2026 development regarding the Corporate Sustainability Due Diligence Directive. Available at: https://www.corporate-sustainability-due-diligence-directive.com/.

EFRAG (2025) ESRS Workstreams. European Financial Reporting Advisory Group. Available at: https://www.efrag.org/en/sustainability-reporting/esrs-workstreams.

European Banking Authority (2022) EBA Roadmap on Sustainable Finance. Paris: European Banking Authority. Available at: https://www.eba.europa.eu/sites/default/files/document_library/Publications/Reports/2022/ESG%20roadmap/1045378/EBA%20Roadmap%20on%20Sustainable%20Finance.pdf.

European Central Bank (2020) Guide on climate-related and environmental risks: Supervisory expectations relating to risk management and disclosure. Frankfurt am Main: European Central Bank. Available at: https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.202011finalguideonclimaterelatedandenvironmentalrisks~58213f6564.en.pdf.

European Commission (2023) Commission Delegated Regulation (EU) 2023/2772 of 31 July 2023 supplementing Directive 2013/34/EU as regards sustainability reporting standards. Official Journal of the European Union, L300, 22 November. Available at: https://eur-lex.europa.eu/eli/reg_del/2023/2772/oj/eng.

European Commission (2025) Corporate sustainability reporting. Available at: https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en.

European Parliament (2022) Sustainable economy: Parliament adopts new reporting rules for multinationals. Available at: https://www.europarl.europa.eu/news/en/press-room/20221107IPR49611/sustainable-economy-parliament-adopts-new-reporting-rules-for-multinationals.

European Union (2022) Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting. Official Journal of the European Union, L 322, 16 December, pp. 15–80. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022L2464.

European Union (2024) Regulation (EU) 2024/1760 of the European Parliament and of the Council of 13 June 2024 on corporate sustainability due diligence and amending Directive (EU) 2019/1937 and Regulation (EU) 2023/2859. Official Journal of the European Union, L 2024/1760, 5 July. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202401760.

Hirsch, S. and Heichl, V. (2025) 'Informative Value of Non-Financial Reports: Analyzing the Impact of Disclosure Format and Auditing', Journal of Corporate Accounting & Finance, pp. 1–3.

Krantz, T. (2024) The history of Environmental, Social, and Governance (ESG). IBM, 8 February. Available at: https://www.ibm.com/think/topics/environmental-social-and-governance-history.

Ministry of Investments, Regional Development and Informatization of the Slovak Republic (2020) Vision and Strategy of Slovakia's Development until 2030. Bratislava: MIRRI SR. Available at: https://mirri.gov.sk/wp-content/uploads/2021/01/Slovensko-2030.pdf.

Myrén, A. (2025) Sustainability reporting under CSRD: Opportunities and barriers with supply chain data collection. pp. 12–13.

National Council of the Slovak Republic (2024) Act No. 105/2024 Coll., amending and supplementing Act No. 431/2002 Coll. on Accounting and certain other acts as amended. Collection of Laws of the Slovak Republic.

Oliver Yébenes, M. (2024) 'Climate change, ESG criteria and recent regulation: Challenges and opportunities', Eurasian Economic Review, 14(1), pp. 87–120. Available at: https://doi.org/10.1007/s40822-023-00248-9.

Operato, L. et al. (2025) 'Navigating CSRD reporting: turning compliance into sustainable development with science-based metrics', Environmental Development, 53, 101138. Available at: https://doi.org/10.1016/j.envdev.2024.101138.

Pathak, N. (2024) 'The Genesis of ESG: Tracing the Historical Roots', in Building a Sustainable Future: Roadmap for India's Progress & Prosperity. pp. 121–122.

S&P Global Ratings (2023) ESG Credit Indicator Report Card: EMEA Banks. Available at: https://disclosure.spglobal.com/ratings/en/regulatory/article/-/view/sourceId/12085396.

AI Enablement in SMEs: Why Theoretical Models Miss the Real Picture

Gvidas Petruzis
Vilnius University Šiauliai Academy, Lithuania

gvidas.petruzis@sa.vu.lt

Abstract: Artificial intelligence is widely promoted as transformative for business competitiveness, yet adoption in small and medium-sized enterprises (SMEs) remains limited and poorly understood. While large corporations develop formal AI strategies backed by dedicated teams and budgets, micro and small enterprises face a different reality: constrained resources, fragmented knowledge and the absence of internal AI expertise. Most existing theoretical frameworks do not account for these differences, as they derive from large-enterprise contexts and assume conditions that rarely exist in smaller firms. This study investigates how AI enablement unfolds in the SME context and where theoretical predictions diverge from empirical evidence. The research employs an exploratory sequential mixed-methods design (QUAL→QUAN). This paper presents findings from the qualitative phase, based on reflexive thematic analysis of in-depth interviews with nine experts who implement AI solutions in SMEs as consultants, integrators or advisers, coded in two cycles and validated through member checks. The interviews were conducted between 2022 and 2025. The findings challenge several established assumptions. Strategy in SMEs is not a formal document but a dynamic process that emerges through collaboration with external IT consultants and incremental implementation. The primary barrier is not technology, which has become increasingly accessible, but knowledge gaps among SME managers about what AI can and cannot do. Innovation culture, treated in most frameworks as a distinct dimension, functions in SMEs as part of human-resource dynamics. Most notably, partnership with external IT consultants emerges as the central mechanism, operating through a three-tier model of consulting, joint planning and long-term support. Dynamic capabilities in SMEs are therefore realised relationally, through external partnerships, rather than through internal organisational processes. The paper contributes a partnership-based refinement of dynamic capabilities theory for smaller firms, and argues that supporting AI adoption in such firms requires partnership-oriented management and policy rather than technology-centric strategies that overlook how these enterprises actually function.

Keywords: Artificial intelligence, SMEs, AI enablement, Cooperation, Entrepreneurship

1. Introduction

Artificial intelligence (AI) is widely described as a general-purpose technology that will reshape competition across industries (Brynjolfsson and McAfee, 2014; Vial, 2019). Public policy, industry reports and the academic literature converge on a similar claim: firms that learn to integrate AI into their operations will outperform those that do not. Yet this narrative has been shaped mainly by the experience of large enterprises, which possess the internal resources, data assets and specialised teams required to translate AI potential into business value (Mikalef and Gupta, 2021; Simón, Revilla and Sáenz, 2024). When attention shifts to small and medium-sized enterprises (SMEs), which account for the majority of firms and employment in most economies, the picture becomes considerably less clear.

Recent systematic reviews confirm that AI adoption among SMEs lags behind that of larger firms, and that the gap does not close through broader availability of tools (Oldemeyer, Jede and Teuteberg, 2025; Schwaeke et al., 2025; OECD, 2025). Cloud AI services, low-cost APIs and generative assistants have reduced technical barriers to entry, yet many SMEs remain on the sidelines (Arroyabe et al., 2024; Mohib et al., 2025). This points to a puzzle: if technology is no longer the binding constraint, what is? And why do existing adoption frameworks, repeatedly validated in large-firm samples, explain so little of what happens in smaller firms?

Most contemporary models of AI adoption, including the Technology-Organization-Environment framework (Tornatzky and Fleischer, 1990; Badghish and Soomro, 2024) and AI-specific frameworks such as AI Readiness and AI Capability (Jöhnk, Weißert and Wyrtki, 2021; Mikalef and Gupta, 2021), rest on assumptions that rarely hold in SMEs. They assume a formal strategy, a distinct IT function, organisational slack for experimentation and internal data science competence. In a micro or small enterprise, none of these can be taken for granted. The owner-manager often doubles as strategist, IT lead and operational manager; external partners, not internal departments, carry most specialised knowledge (Ayinaddis, 2025).

This study addresses the resulting gap between theory and practice. The central research question is: how does AI enablement unfold in SMEs, and where do theoretical predictions diverge from empirical practice? The concept of AI enablement is used here in a broad sense, encompassing not only the decision to adopt specific AI tools but also the organisational, human and relational conditions that allow AI to be put to productive use.

Enablement is therefore closer to the notion of dynamic capabilities (Teece, 2007) than to a one-off technology adoption decision.

To address the research question, the study uses an exploratory sequential mixed-methods design, the qualitative phase of which is reported here. Nine experts with direct experience implementing AI projects in Lithuanian SMEs were interviewed between 2022 and 2025. Experts were chosen deliberately: they observe a wide cross-section of SME realities and can articulate patterns that individual managers often cannot. Thematic analysis produced 725 coded segments, 106 codes and seven themes, with inter-theme relations examined through segment-level code co-occurrence.

The contribution is fourfold: four divergences between large-firm frameworks and SME reality; a partnership-based refinement of dynamic capabilities, in which sensing, seizing and reconfiguring are realised through external consultants; a reframing of the technology-versus-knowledge debate showing that knowledge gaps dominate technological constraints; and grounded guidance for consultants, SME managers and policymakers whose interventions often rest on large-firm assumptions.

2. Theoretical Background

2.1 AI Enablement and Dynamic Capabilities

AI enablement is not yet a stable construct. It is used to describe the organisational conditions that allow AI to generate value, beyond the binary question of whether a tool has been adopted (Mikalef and Gupta, 2021; Bettoni et al., 2021; Acimovic, 2024). Enablement covers strategic orientation, human capital, data readiness, processes and the external relationships that sustain adoption over time. It is closer in spirit to the dynamic capabilities view than to traditional adoption frameworks (Hossain, Fernando and Akter, 2025; Simón, Revilla and Sáenz, 2024).

Dynamic capabilities theory (DCT) defines the firm's ability to sense opportunities and threats, seize them through appropriate resource commitments, and reconfigure its asset base as conditions change (Teece, Pisano and Shuen, 1997; Teece, 2007). AI is a natural test case for DCT because its value depends less on the technology itself than on the organisation's ability to perceive new use cases, commit to them and reshape routines accordingly. However, Teece's original formulation was based on observations of large multinational firms where sensing, seizing and reconfiguring are distributed across specialised units. Whether the same mechanisms operate in a firm of fifteen employees is an open question.

2.2 Large-firm Frameworks and Their Assumptions

Two families of models dominate the AI adoption literature. The TOE framework (Tornatzky and Fleischer, 1990) distinguishes technological, organisational and environmental factors; applied to AI, it typically highlights perceived usefulness, top management support, data infrastructure and competitive pressure (Badghish and Soomro, 2024; Schwaeke et al., 2025). More recent AI-specific frameworks, notably AI Readiness (Jöhnk, Weißert and Wyrtki, 2021) and AI Capability (Mikalef and Gupta, 2021), build on these foundations while adding constructs such as data availability, algorithmic maturity and AI governance. Systematic reviews show that these frameworks have been extended to SME samples, but typically through measurement-level adaptation rather than conceptual revision (Oldemeyer, Jede and Teuteberg, 2025; Ayinaddis, 2025).

Despite their differences, these frameworks share a set of implicit assumptions that reflect their large-firm origin. They assume that a firm has an identifiable strategy that can be captured in a document; that roles are differentiated, so that top management support, IT leadership and operational execution are distinct variables; that innovation culture exists as a separate organisational property, independent of individual relationships; and that adoption is an internal process in which external actors are, at most, suppliers. Evidence from SMEs, reviewed below, challenges each of these assumptions (Arroyabe et al., 2024; Mohib et al., 2025).

2.3 The SME Context

SMEs differ from large firms in ways that matter for AI enablement. Resource constraints are chronic, so AI decisions compete directly with payroll, inventory and marketing (Mohib et al., 2025). The owner-manager typically concentrates strategic, operational and technical roles in a single person, which compresses decision cycles but removes the specialised functions that large-firm frameworks assume. Formal strategic planning is rare, not because managers do not think strategically, but because the horizon is short and the environment changes rapidly. Internal AI expertise is almost absent; where technical competence exists, it is usually generalist

IT competence rather than data science (Arroyabe et al., 2024). External partners therefore carry a disproportionate share of the knowledge on which adoption decisions depend (Ayinaddis, 2025).

Recent systematic reviews document low adoption rates, knowledge barriers and reliance on external providers (Oldemeyer, Jede and Teuteberg, 2025; Schwaeke et al., 2025), but few offer a coherent framework that captures how enablement unfolds when most of the conditions assumed by adoption models are absent. Empirical work on European SME samples shows that digital capabilities and innovation routines, rather than technology access as such, differentiate adopters from non-adopters (Arroyabe et al., 2024). This study contributes to the same gap by treating SMEs not as scaled-down large firms but as organisations with their own logic, in which dynamic capabilities may be realised through fundamentally different mechanisms (Hossain, Fernando and Akter, 2025).

3. Methodology

3.1 Research Design

The study uses an exploratory sequential mixed-methods design (Creswell and Plano Clark, 2018), chosen because existing AI enablement instruments are large-firm artefacts whose fit with SMEs cannot be assumed: constructs must be surfaced before they are measured, especially where practice-based knowledge is not readily articulated in pre-formed survey items. The design proceeds in two phases (Figure 1). Phase 1, reported here, uses in-depth expert interviews to reconstruct how AI enablement unfolds in SMEs from practitioners with cross-firm exposure. Phase 2, currently under data collection, operationalises the emergent constructs into a survey of Lithuanian SME managers analysed by PLS-SEM, and will specifically test whether managers themselves perceive partnership as the central mechanism, whether knowledge gaps dominate technological barriers in self-reported data, and whether innovation culture loads as a distinct construct or collapses into human-resource items.

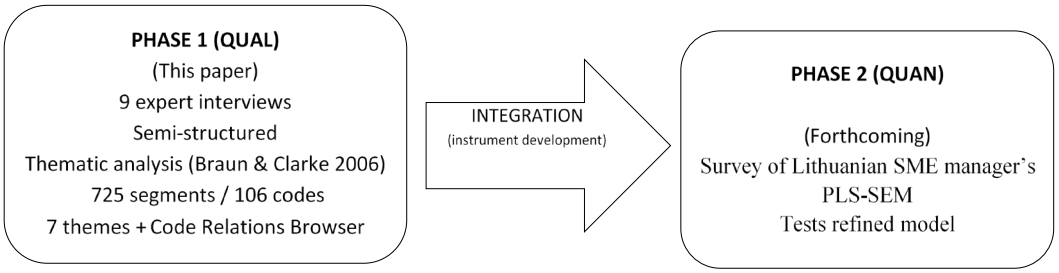


Figure 1: Exploratory sequential mixed-methods design. The qualitative phase reported here informs the instrument for the forthcoming PLS-SEM phase

3.2 Sampling

Purposive criterion sampling (Patton, 2014) was used to recruit nine experts who implement AI solutions for Lithuanian SMEs. Experts were chosen rather than SME owners because each draws on cross-firm experience that reveals systemic patterns invisible to single-firm informants (Yin, 2018); their outsider vantage reduces self-presentation effects; and they observe implementation from first contact to ongoing support. Experts varied in seniority (three to over twenty years), organisation type and client portfolio (micro firms to mid-sized manufacturers). Identifiers INT-01 to INT-09 are used throughout.

3.3 Data Collection

Data were collected through in-depth expert interviews conducted between June 2022 and October 2025. The interview guide was developed using the three-stage rigour framework of Kallio et al. (2016): theoretical grounding from the literature review, item formulation along the enablement dimensions (strategy, finance, human resources, processes, technology, data), and validation through a pilot interview (INT-01). As the pilot produced no substantive revisions, its data were retained in the main analysis (Castillo-Montoya, 2016). Interviews lasted 35 to 75 minutes (mean approximately 60) and were audio-recorded with consent. Transcripts were returned to experts for member verification and analysed in the original Lithuanian to preserve nuance; quotations reported here are the author's translation.

3.4 Analysis

Thematic analysis followed the six-phase procedure of Braun and Clarke (2006) and was conducted in MAXQDA. Coding combined deductive codes derived from the theoretical dimensions with inductive codes that emerged from the data. After iterative refinement, the final coding frame contained 725 segments, 106 codes and eight categories organised into seven themes: five deductive themes corresponding to the core enablement dimensions and two emergent themes capturing barriers and enabling catalysts. Inter-thematic relations were examined through segment-level code co-occurrence counts, which made it possible to move beyond theme-by-theme description and identify which dimensions are tightly coupled in practice.

Data saturation was assessed along three dimensions: new-code emergence, category coverage, and thematic convergence (Guest, Bunce and Johnson, 2006; Saunders et al., 2018). The first interview generated 43 baseline codes; the rate of new code generation fell below 6% by the fifth interview and below 3% by the sixth. The eighth interview added only one new code (2%), and the ninth added none. All eight coding categories appeared in at least seven interviews, with five categories reaching 9/9 coverage. No new themes emerged in the final three interviews. Sample adequacy is thus supported empirically and by the information-power criterion of Saunders et al. (2018).

Trustworthiness was addressed along the four criteria established in the qualitative methodology literature (Creswell and Poth, 2018): credibility, transferability, dependability and confirmability. Credibility was supported by member checks with three experts who reviewed the interpretation of their interviews; by analytic memos that documented coding decisions; and by peer debriefing with two doctoral colleagues. Transferability is supported by thick description of the SME context and of each expert's background. Dependability and confirmability are supported by an audit trail that includes the coding frame, memos and co-occurrence outputs, archived in the project repository.

The four divergences presented in the next section were identified by comparing the emergent thematic structure and the co-occurrence link pattern with the theoretical model that guided the interview guide. A divergence was flagged when the empirical pattern was stable across interviews and could not be accommodated by the original theoretical framing without distortion.

4. Findings

Seven themes emerged: strategic AI vision, financial pragmatism, human resources, process transformation, technological environment, barriers and enabling catalysts. This section presents four divergences between theory and empirical data that cut across themes (Table 1). Two framing findings anchor the analysis: the most frequent code is SME managers' lack of knowledge about AI capabilities (33 segments, all nine interviews); and the strategic dimension has the strongest links with every other dimension, the single strongest being strategy–catalysts (135 co-occurrences). AI enablement in SMEs is organised around knowledge and strategy rather than technology.

Table 1: Four theory–empirical divergences in AI enablement in SMEs.

Dimension	Theoretical assumption	Empirical finding (SMEs)
Strategy	Formal document preceding adoption	Dynamic process co-produced with consultants
Primary barrier	Technological complexity and cost	Manager knowledge and perception gaps
Innovation culture	Distinct organisational dimension	Embedded facet of human-resource dynamics
Dynamic capabilities	Internal organisational functions	Realised relationally through external partnership

4.1 Strategy as a Dynamic Process, not a Formal Document

In the SME context, strategy as a formal artefact does not exist. Experts were consistent: “in general, I have never seen a strategy, let alone one dedicated to artificial intelligence” (INT-07). The absence of a document does not mean the absence of strategic thinking, but that it takes a different form. One expert estimated “one in ten businesses has a vision” (INT-09); the other nine have operational priorities they revise continuously as their environment changes.

What the interviews describe is a process in which strategy is co-produced with external consultants and refined through small implementation steps. The consultant typically begins not with AI but with a business problem: “often the consultation does not start with artificial intelligence. The company comes with some other problem that could be solved through digitalisation. Then, over time, this intertwines with artificial intelligence” (INT-02). Over the course of several engagements, a de facto AI strategy crystallises out of a sequence of concrete decisions, each of which is small enough to fit the firm's resource envelope but cumulatively reshapes the way the business operates.

The co-occurrence data reinforce this picture. The strategic dimension has the strongest link with catalysts (135 co-occurrences), followed by processes (123) and human resources (94). Strategy and catalysts are effectively discussed together: when experts describe how a firm acquires an AI strategy, they describe the same situations in which external partnership, incremental experimentation and targeted learning take place. This finding is a direct challenge to frameworks that treat strategy as an antecedent of adoption. In SMEs, strategy is not a precondition but a by-product of partnership-enabled action.

4.2 The Primary Barrier is Knowledge, not Technology

TOE and DOI frameworks assume technological characteristics (complexity, compatibility, cost) are the first hurdle. The data tell a different story. Technology barriers account for only 9 segments across 5 of 9 interviews, whereas knowledge-related barriers account for 27 segments across 7 interviews and, combined with human-resource codes, dominate the landscape. The most frequent code in the dataset, present in every interview, is SME managers' lack of knowledge about AI capabilities.

Experts framed their work as fundamentally educational. One stated: “we really have to educate them, because they do not fully understand what, how and where” (INT-04). Another described the asymmetry between expectation and understanding: “even a clear understanding of what exactly artificial intelligence can offer to my company is really lacking” (INT-02). A paradox runs through the interviews. SME managers have been exposed to popular media narratives that present AI as almost omnipotent, which produces unrealistic expectations: “they think that you will do everything at once, and it will all happen without them having to do anything” (INT-05). Yet the same managers know almost nothing about what AI cannot do, which makes them unable to evaluate proposals or decide where to start.

Technology, in the experts' accounts, is rarely the binding constraint. Cloud services, generative AI assistants and low-cost APIs are widely accessible. The obstacle is that managers do not know which problem to solve, what questions to ask the technology or how to recognise a useful output. The relevant policy question therefore shifts from “how do we make the technology cheaper?” to “how do we close the knowledge gap that prevents SMEs from using what is already available?”

4.3 Innovation Culture is Part of Human Resources, not a Separate Dimension

AI readiness frameworks treat innovation culture as a distinct organisational property, measured by openness to change, tolerance of failure and willingness to experiment. In the interviews, culture in this abstract sense did not surface as a separate construct. Experts described instead human dynamics embedded in the owner-employee relationship. Resistance was individual rather than organisational: “systems are inert, they change slowly. Right now the bigger resistance comes from people themselves, not from the technology” (INT-06). Innovation typically originated with a specific person rather than a cultural programme: “there is often that one employee who is curious, who is interested, and who ignites the enthusiasm in the company” (INT-09).

The theme labelled “human resources” absorbed 106 segments across all nine interviews and included five sub-topics: manager knowledge gaps, willingness to learn, employee attitudes, bottom-up initiatives and innovation culture. Empirically, these sub-topics are too entangled to separate. A bottom-up initiative by a motivated employee is simultaneously an act of learning and of cultural change; a manager who invests twenty minutes a day in generative AI is simultaneously a strategic actor and a cultural signal for the rest of the team. In a firm of ten or twenty people, culture is not a backdrop against which behaviour takes place; it is the behaviour itself.

This finding carries a measurement implication. Items used to measure innovation culture in large-firm surveys (formal innovation programmes, tolerance for failure, dedicated innovation units) do not correspond to anything present in an SME. What matters instead is whether the manager learns, whether specific employees experiment and whether those experiments are allowed to propagate.

4.4 Partnership as the Central Enablement Mechanism

Partnership with external IT consultants is the central mechanism by which AI enablement happens in SMEs. The catalyst theme, which captures this partnership, accounts for 112 segments across all nine interviews, of which 51 concern the consultant relationship. Its co-occurrence link with strategy (135 segments) is the strongest in the entire matrix. Experts described their role not as product suppliers but as long-term partners: “my goal is to be with them, a partner on this evolution path” (INT-09).

The data support a three-tier model of partnership (Figure 2). The first tier is consulting and training, in which the consultant provides structured exposure to AI capabilities and teaches the manager and employees to use basic tools. One expert described this work as largely educational: “a large part of the work is education, planning and explaining what is possible with current technology” (INT-09). The second tier is joint planning, in which the consultant and the SME co-design specific use cases, prioritise them against the firm's resources and agree on an implementation sequence. The third tier is long-term support, in which the consultant remains available as the firm experiments and gradually builds competence. The tiers are overlapping modes rather than sequential stages.

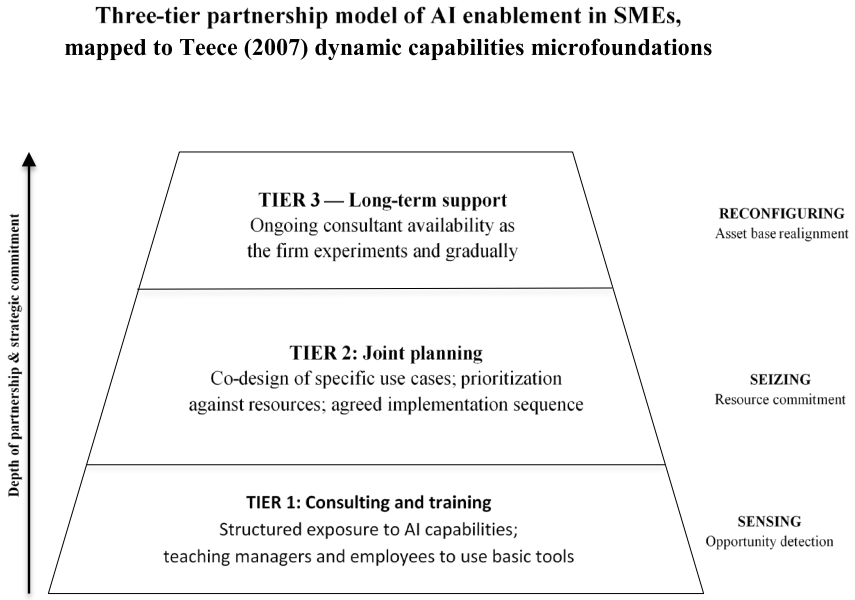


Figure 2: Three-tier partnership model of AI enablement in SMEs, mapped to Teece (2007) dynamic capabilities microfoundations

This partnership mechanism refines the dynamic capabilities view for SMEs: sensing is performed by the consultant, seizing is a joint act in which the consultant commits expertise and the firm commits managerial attention and budget, and reconfiguring occurs as processes and roles adjust to new tools with ongoing consultant support. Dynamic capabilities, in other words, are realised relationally rather than internally. This also explains why strategy rather than technology has the strongest position in the co-occurrence matrix: partnership produces strategy as a by-product of repeated engagement, and strategy in turn shapes which technologies are adopted.

5. Discussion

5.1 Refining Dynamic Capabilities for SMEs

The findings refine Teece's (2007) dynamic capabilities framework for SMEs. In large firms, sensing, seizing and reconfiguring are distributed across internal functions; in SMEs they do not disappear but migrate into the relationship between the owner-manager and a small number of trusted external partners. This is consistent with recent work reframing AI adoption in SMEs as a managerial-capability phenomenon realised through leadership and external collaboration rather than internal departments (Hossain, Fernando and Akter, 2025;

Simón, Revilla and Sáenz, 2024). SMEs therefore do not lack dynamic capabilities; they realise them through a different institutional arrangement. Survey items asking whether a firm has a dedicated function for identifying new technologies will mechanically return low scores even in SMEs that sense and seize effectively through consultants; items probing the quality of external partnerships and willingness to act on consultant input capture the same construct with less bias.

5.2 Implications for AI Adoption Models

The four divergences, taken together, point towards a partnership-oriented, knowledge-first, incremental model of AI enablement in SMEs. This model differs from technology-centric frameworks in three respects. First, it places knowledge gaps, rather than technological barriers, at the centre of the adoption problem, a pattern also reported in the most recent SME systematic reviews (Schwaeke et al., 2025; Oldemeyer, Jede and Teuteberg, 2025). Second, it treats strategy as an outcome of engagement rather than a precondition for it. Third, it treats external partnerships as constitutive of the firm's AI capability, not as auxiliary inputs. These shifts qualify rather than invalidate existing frameworks. The TOE framework remains useful where its assumptions hold (Badghish and Soomro, 2024); in SMEs it requires substantial adaptation, and the items most commonly used to operationalise it need to be reconsidered (Arroyabe et al., 2024; Soomro et al., 2025).

5.3 Practical Implications

For SME managers, the findings suggest engaging consultants earlier rather than later, and treating the initial engagement as an investment in learning rather than in a specific tool. The value of the first engagement often lies less in the deliverable than in the map of possibilities it produces (Acimovic, 2024). For IT consultants, the three-tier partnership model offers a useful self-diagnostic: engagements that stop at the first tier risk leaving the client with fragile capability, while engagements that include planning and long-term support are more likely to produce sustained adoption. For policymakers, the findings argue for programmes that fund partnerships and learning, not only technology grants (OECD, 2025).

6. Conclusions, Limitations and Future Research

This paper has argued that AI enablement in SMEs is organised around knowledge and partnership rather than technology, and that existing frameworks derived from large-firm contexts miss important features of SME reality. Four empirical-theoretical divergences were identified: strategy as a dynamic process rather than a document; knowledge as the primary barrier rather than technology; innovation culture as a facet of human resources rather than a separate dimension; and partnership as the central enablement mechanism rather than an auxiliary input. Together these findings support a partnership-based refinement of dynamic capabilities theory for smaller firms.

The study has several limitations. The sample is small (nine experts) and drawn from a single national context (Lithuania), which limits statistical generalisation but is appropriate for a qualitative phase. The perspective is that of experts observing SMEs from the outside rather than owners themselves, a deliberate choice mitigated by member checks and triangulation with the forthcoming quantitative phase.

The next step is the quantitative phase, in which a survey of Lithuanian SME managers tests the refined model on a larger sample. Particular attention will be paid to the partnership construct, which is under-represented in existing AI adoption instruments, and to the collapse of innovation culture into human resources. Comparative work in other national contexts, and in sectors with different consultant ecosystems, would further test the boundary conditions of the partnership-based view.

Ethics Declaration: The qualitative data reported in this paper were collected between 2022 and 2025, prior to the introduction of the current institutional research ethics review procedure at Vilnius University Šiauliai Academy. All experts participated voluntarily, were informed of the study's purpose and intended publication, and provided consent for the use of anonymised excerpts from their interviews; identifying information has been removed and experts are referred to only by the codes INT-01 to INT-09. The quantitative phase of the wider doctoral study received formal ethics approval from the Vilnius University Šiauliai Academy ethics committee.

The author used the large language model Claude (Anthropic) to assist with translation of Lithuanian source materials into English and to polish scientific English language during manuscript preparation. The tool was used iteratively under direct human oversight. All scholarly content, analysis, interpretation and conclusions are the work and responsibility of the author.

References

Acimovic, A. (2024) AI-driven digital transformation strategies for enhancing competitiveness in SMEs. ResearchGate Publication, October.

Arroyabe, M.F., Arranz, C.F., De Arroyabe, I.F. and de Arroyabe, J.C.F. (2024) Analyzing AI adoption in European SMEs: a study of digital capabilities, innovation, and external environment. Technology in Society, 79, 102733.

Ayinaddis, S.G. (2025) Artificial intelligence adoption dynamics and knowledge in SMEs and large firms: a systematic review and bibliometric analysis. Journal of Innovation & Knowledge, 10(3), 100682.

Badghish, S. and Soomro, Y.A. (2024) Artificial intelligence adoption by SMEs to achieve sustainable business performance: application of technology–organization–environment framework. Sustainability, 16(5), 1864.

Bettoni, A., Matteri, D., Montini, E., Gladysz, B. and Carpanzano, E. (2021) An AI adoption model for SMEs: a conceptual framework. IFAC-PapersOnLine, 54(1), pp.702–708.

Braun, V. and Clarke, V. (2006) Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), pp.77–101.

Brynjolfsson, E. and McAfee, A. (2014) The second machine age: work, progress, and prosperity in a time of brilliant technologies. New York: W.W. Norton & Company.

Castillo-Montoya, M. (2016) Preparing for interview research: the interview protocol refinement framework. The Qualitative Report, 21(5), pp.811–831.

Creswell, J.W. and Plano Clark, V.L. (2018) Designing and conducting mixed methods research. 3rd ed. Thousand Oaks, CA: Sage.

Creswell, J.W. and Poth, C.N. (2018) Qualitative inquiry and research design: choosing among five approaches. 4th ed. Thousand Oaks, CA: Sage.

Guest, G., Bunce, A. and Johnson, L. (2006) How many interviews are enough? An experiment with data saturation and variability. Field Methods, 18(1), pp.59–82.

Hossain, S., Fernando, M. and Akter, S. (2025) Digital leadership: towards a dynamic managerial capability perspective of artificial intelligence-driven organisational transformation. Journal of Business Research, forthcoming.

Jöhnk, J., Weißert, M. and Wyrtki, K. (2021) Ready or not, AI comes: an interview study of organizational AI readiness factors. Business & Information Systems Engineering, 63(1), pp.5–20.

Kallio, H., Pietilä, A.-M., Johnson, M. and Kangasniemi, M. (2016) Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. Journal of Advanced Nursing, 72(12), pp.2954–2965.

Mikalef, P. and Gupta, M. (2021) Artificial intelligence capability: conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance. Information & Management, 58(3), 103434.

Mohib, M., Khan, F.K., El Burari, E.R. and Ali, S. (2025) The challenges and limitations of artificial intelligence adoption in small and medium-sized enterprises. Review Journal of Social Psychology and Social Works, 3(1), pp.292–303.

OECD (2025) AI adoption by small and medium-sized enterprises: OECD discussion paper for the G7. Paris: OECD Publishing.

Oldemeyer, L., Jede, A. and Teuteberg, F. (2025) Investigation of artificial intelligence in SMEs: a systematic review of the state of the art and the main implementation challenges. Management Review Quarterly, 75, pp.1185–1227.

Patton, M.Q. (2014) Qualitative research and evaluation methods: integrating theory and practice. 4th ed. Thousand Oaks, CA: Sage.

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H. and Jinks, C. (2018) Saturation in qualitative research: exploring its conceptualization and operationalization. Quality & Quantity, 52(4), pp.1893–1907.

Schwaeke, J., Peters, A., Kanbach, D.K., Kraus, S. and Jones, P. (2025) The new normal: the status quo of AI adoption in SMEs. Journal of Small Business Management, 63(3), pp.1297–1331.

Simón, C., Revilla, E. and Sáenz, M.J. (2024) Integrating AI in organizations for value creation through human-AI teaming: a dynamic-capabilities approach. Journal of Business Research, 182, 114783.

Soomro, R.B., Al Rahmi, W.M., Dahri, N.A., Almuqren, L., Al mogren, A.S. and Aldaijy, A. (2025) A SEM-ANN analysis to examine impact of artificial intelligence technologies on sustainable performance of SMEs. Scientific Reports, 15, 5438.

Teece, D.J. (2007) Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. Strategic Management Journal, 28(13), pp.1319–1350.

Teece, D.J., Pisano, G. and Shuen, A. (1997) Dynamic capabilities and strategic management. Strategic Management Journal, 18(7), pp.509–533.

Tornatzky, L.G. and Fleischer, M. (1990) The processes of technological innovation. Lexington, MA: Lexington Books.

Vial, G. (2019) Understanding digital transformation: a review and a research agenda. Journal of Strategic Information Systems, 28(2), pp.118–144.

Yin, R.K. (2018) Case study research and applications: design and methods. 6th ed. Thousand Oaks, CA: Sage.

Transformational Leadership, Organizational Resilience, and Business Performance in Contexts of Social Uncertainty: A Conceptual Proposal for SMEs in Portugal

Norberto Semião[1], Rita Nunes[1], Jorge Simões[2] and Susana Domingos[2]
[1]NECE-UBI Research Centre for Business Sciences, University of Beira Interior, Covilhã, Portugal
[2]TECHN&ART - Technology, Restoration and Arts Enhancement Center, Gest&9 - Center for Research and Innovation in Management, Polytechnic Institute of Tomar, Portugal

norberto.semiao@ubi.pt
anunes.rita.ana@gmail.com
jorgesimoes@ipt.pt
susana.domingos@ipt.pt

Abstract: Growing social and environmental uncertainty—marked by economic volatility, technological change, skills shortages, institutional pressure, and shifting social expectations—has posed new challenges to companies' ability to maintain performance, adapt, and remain sustainable. In this context, this article presents a conceptual analysis of the role of transformational leadership in building organizational resilience and improving business performance in Portugal. Based on a critical and integrative review of the literature, it is argued that transformational leadership contributes to more adaptive organizational cultures through shared vision, intellectual stimulation, and individualized consideration. The proposed model suggests that organizational resilience plays a mediating role, translating leadership into observable capabilities of anticipation, absorption, response, adaptation, and renewal. The article also identifies explanatory mechanisms, such as sensemaking, organizational learning, trust, employee engagement, innovation, and resource reconfiguration, as well as complementary conditions associated with digital capabilities, information quality, management system maturity, and skilled human capital. The study contributes to integrating leadership, resilience, and performance into a conceptual framework applicable to the Portuguese business context.

Keywords: Transformational leadership, Organizational resilience, Dynamic capabilities, Business performance, Social uncertainty, SMEs, Portugal

1. Introduction

Organizations operate in an environment marked by technological acceleration, geopolitical fragmentation, market volatility, skills shortages, demographic changes, and increasing regulatory and social pressure. These conditions require the ability to interpret uncertain signals, make rapid decisions, and maintain sustainable levels of performance. In this context, social uncertainty extends beyond external turbulence, encompassing pressures that affect consumer expectations, talent availability, work arrangements, and the legitimacy of business decisions.

The literature has addressed this scenario through three complementary perspectives: transformational leadership, associated with the creation of vision, mobilization, and commitment during periods of change (Bass, 1985; Bass & Riggio, 2006; Banks et al., 2016; Wang et al., 2011); organizational resilience, understood as the capacity to anticipate, cope with, recover from, and learn from adverse events (Duchek, 2020; Hillmann & Guenther, 2021; Linnenluecke, 2017; Williams et al., 2017); and dynamic capabilities, which explain how organizations adjust resources, routines, and competencies in response to change (Eisenhardt & Martin, 2000; Teece, 2007; Teece et al., 1997).

Despite these advances, the relationship between transformational leadership, organizational resilience, and business performance remains fragmented. Research does not always clarify the mechanisms through which leadership behaviors are translated into adaptive capacity, nor the role of leadership as a microfoundation of resilience. This gap is particularly relevant in contexts of uncertainty, where performance depends not only on the resources available but also on the ability to interpret, mobilize, and reconfigure them.

This discussion is relevant in Portugal, given the role of SMEs and their exposure to limitations in scale, skills, and digital capabilities. Although Portuguese SMEs recorded a recovery in employment and real value added in 2024, challenges associated with global uncertainty, digital transformation, skills, and productivity persist (European Commission, 2025; OECD, 2026). Understanding how leadership can strengthen organizational resilience is therefore relevant both for research and for business competitiveness.

The aim of this article is to develop a conceptual framework on the influence of transformational leadership on organizational resilience and business performance in contexts of social uncertainty, with particular attention to Portuguese firms. Specifically, it seeks to understand how transformational leadership contributes to organizational resilience, how resilience may mediate the relationship between leadership and performance, and how social and environmental uncertainty influences the relevance of SMEs' adaptive capabilities.

The article makes three main contributions: it integrates transformational leadership, organizational resilience, and dynamic capabilities, treating leadership as a microfoundation of strategic adaptation; it proposes resilience as a mediating mechanism between leadership and performance; and it contextualizes these relationships within Portuguese firms, highlighting the importance of anticipation, learning, innovation, and response capabilities in the face of social, technological, and economic pressures.

2. Methodology

This study follows a conceptual and integrative approach, which is appropriate when the objective is not to estimate immediate empirical effects, but rather to clarify constructs, integrate partially disparate lines of research, and propose theoretical relationships susceptible to future empirical validation. (Snyder, 2019; Paul & Criado, 2020) The choice of an integrative review, rather than a systematic review guided by a protocol such as PRISMA (Tranfield et al., 2003), stems from the objective of synthesizing contributions from different theoretical domains — namely transformational leadership, organizational resilience, dynamic capabilities, environmental uncertainty, and business performance — to develop a synthesis geared toward conceptual construction and the formulation of propositions.

The literature review was conducted in the Scopus and Web of Science databases, in the fields of Business, Management and Accounting, and Social Sciences, using combinations of keywords such as "transformational leadership," "organizational resilience," "business performance," "environmental uncertainty," "social uncertainty," "dynamic capabilities," "organizational learning," "innovation," "digital capabilities," "human capital," and "SMEs." The selection prioritized the conceptual relevance of studies and articles published in journals classified as 3, 4, and 4* in the Chartered Association of Business Schools (ABS) Academic Journal Guide 2024, supplemented by seminal works relevant to the theoretical framework.

Fifteen articles were included for in-depth analysis. The analysis considered the thematic focus, theoretical frameworks, identified gaps and tensions, and the positioning and contribution of each study, resulting in the identification of 45 themes. These were subsequently organized and synthesized according to their relevance to the constructs and relationships under analysis.

The synthesis of the themes allowed us to identify the following as the main areas of convergence: (i) transformational leadership and organizational adaptation; (ii) organizational resilience and dynamic capabilities; (iii) learning, innovation, and resource reconfiguration; (iv) resilience and business performance; (v) social and environmental uncertainty; and (vi) digital capabilities and human capital. The interconnection of these areas made it possible to identify the relevant explanatory mechanisms and contextual conditions, providing the basis for the formulation of the six theoretical propositions and the construction of the conceptual model presented in the following sections.

3. Theoretical Framework

3.1 Transformational Leadership as a Microfoundation of Organizational Adaptation

Transformational leadership seeks to enhance employees' motivation, commitment, and performance through four main dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass, 1985; Bass & Riggio, 2006). By influencing how employees interpret goals, challenges, and opportunities for change, it becomes particularly relevant in contexts of uncertainty, where ambiguity hinders coordinated action.

The literature associates transformational leadership with individual, team, and organizational performance (Banks et al., 2016; Wang et al., 2011). However, this relationship is not necessarily direct, as it depends on organizational mechanisms and conditions that enable leadership behaviors to be translated into adaptive capacity (Bakker et al., 2023; Vera & Crossan, 2004). This perspective brings transformational leadership closer to the notion of the microfoundations of dynamic capabilities by recognizing the role of leaders in interpreting change, mobilizing resources, and promoting organizational adaptation (Teece, 2007; Teece et al., 1997).

In this sense, transformational leadership can contribute to building organizational resilience, although its effectiveness depends on the organizational and contextual conditions in which it is exercised. The mechanisms through which this relationship develops are further explored in the theoretical propositions presented below.

3.2 Organizational Resilience as a Dynamic Metacapacity

Organizational resilience is no longer understood solely as the ability to recover after a shock, but is currently conceptualized as a process-oriented and strategic capacity to anticipate threats, absorb impacts, respond to adverse events, adapt routines, and transform practices in response to external changes (Duchek, 2020; Hillmann & Guenther, 2021; Linnenluecke, 2017; Williams et al., 2017). From this perspective, resilient organizations go beyond recovery by learning from adversity and developing new capabilities (Conz & Magnani, 2020; Sutcliffe & Vogus, 2003; Mithani, 2020).

Duchek (2020) structures resilience into three stages: anticipation, coping, and adaptation, corresponding to preparation and the interpretation of signals, response during disruption, and subsequent learning and transformation. Resilience thus assumes the nature of a meta-capacity that integrates different organizational resources. This interpretation aligns with the dynamic capabilities perspective, according to which adaptation in volatile environments depends not only on the possession of resources but also on the ability to reconfigure them in response to environmental changes (Barney, 1991; Eisenhardt & Martin, 2000; Teece, 2007; Zahra et al., 2006).

Resilience is also multilevel in nature, depending on individual competencies, trust, leadership, structural flexibility, access to information, external networks, and learning (Lengnick-Hall et al., 2011; Stoverink et al., 2020; Su & Junge, 2023; Williams et al., 2017). This dimension is particularly relevant for Portuguese SMEs, which are often characterized by close interpersonal relationships, reliance on tacit knowledge, and decision-making concentrated at the top management level, conditions under which leadership can facilitate or hinder the transformation of external signals into effective organizational responses.

3.3 Social Uncertainty, Environmental Turbulence, and the Specificity of the Portuguese Context

In this article, “social uncertainty” refers to external conditions that make it more difficult to predict behaviors, resources, expectations, and constraints that affect business activity, including economic instability, changes in the labor market, shifts in consumer preferences, geopolitical tensions, technological pressure, demographic aging, and skills shortages. Although the literature frequently uses the concept of environmental uncertainty, the social perspective also considers changes in labor relations, available skills, and societal expectations. Recent transformations in work arrangements illustrate this dimension, highlighting how technological and organizational changes, as well as shifts in employee expectations, may require adaptations in leadership, coordination, and organizational structures (Nunes et al., 2025).

In Portugal, this discussion is particularly relevant given the significant role of SMEs and microenterprises. Despite the recovery recorded in 2024 in employment and real value added among Portuguese SMEs, challenges related to global uncertainty, skills, and productivity persist (European Commission, 2025; OECD, 2026), reinforcing the need for adaptive capabilities, particularly in firms with limited resources.

The digital transition adds another dimension of uncertainty. Although it can improve efficiency, analytical capabilities, market access, and innovation, it requires skills, investment, process changes, and strategic alignment (Matarazzo et al., 2021; Verhoef et al., 2021). In the Portuguese context, challenges persist regarding the adoption of artificial intelligence by companies and the development of digital skills (European Commission, 2025), making leadership and adaptive capabilities relevant in facilitating the integration of digital transformation into organizational routines.

Thus, social and environmental uncertainty constitutes a relevant contextual condition for the relationships between leadership, resilience, and performance. Its influence, however, depends on the intensity of uncertainty and the resources available, potentially increasing the need for adaptive capabilities without guaranteeing their effectiveness.

3.4 Business Performance: Beyond the Financial Perspective

Business performance is a multidimensional construct that encompasses financial, operational, competitive, innovative, and survival dimensions and should not be assessed through a single indicator (Richard et al., 2009). This perspective is particularly relevant in contexts of uncertainty, where the preservation of short-term financial results may coexist with losses in innovation capacity or organizational learning.

In this article, business performance is understood as a multidimensional outcome that includes operational continuity, decision-making quality, efficiency, innovation, market responsiveness, customer satisfaction, talent retention, and economic and financial sustainability. This approach is consistent with the literature on resilience, which considers not only recovery from shocks but also the preservation of critical functions and the capacity for organizational renewal (Garrido-Moreno et al., 2024; Williams et al., 2017).

Whenever possible, its operationalization should combine objective indicators, such as sales growth, profitability, and productivity, with process-based and subjective performance measures, which are particularly relevant in SMEs when comparable financial data are limited. Table 1 summarizes the core constructs considered in the conceptual model.

Table 1: Conceptual overview of the core constructs

Construct	Proposed operational definition	Main dimensions	Key References
Transformational leadership	The ability of leadership to create meaning, commitment, and learning around a shared vision, especially during times of change.	Idealized influence; inspirational motivation; intellectual stimulation; individualized consideration.	Bass (1985); Bass and Riggio (2006); Banks et al. (2016); Wang et al. (2011).
Organizational Resilience	A dynamic meta-capacity that enables an organization to anticipate, absorb, respond to, adapt to, and renew itself in the face of external shocks or changes.	Anticipation; coping; adaptation; learning; transformation.	Duchek (2020); Hillmann and Guenther (2021); Linnenluecke (2017); Williams et al. (2017).
Social and Environmental Uncertainty	The degree of unpredictability in the social, economic, technological, and institutional conditions that influence decisions and performance.	Volatility; ambiguity; skills shortages; market changes; technological pressure.	Milliken (1987); Packard and Clark (2020); OECD (2026); European Commission (2025).
Business performance	A multidimensional outcome that combines financial, operational, competitive, innovative, and organizational continuity indicators.	Productivity; growth; profitability; innovation; market responsiveness; survival.	Richard et al. (2009); Garrido-Moreno et al. (2024); Do et al. (2022).

4. Development of Theoretical Proposals

4.1 Transformational Leadership and Organizational Resilience

The first central relationship in the proposed model links transformational leadership to organizational resilience. In contexts of uncertainty, employees need to interpret ambiguous information, accept change, coordinate responses, and maintain collective energy even under pressure. Transformational leadership can facilitate this process by building a shared vision, reinforcing trust, providing intellectual stimulation, and offering individualized consideration (Bass, 1985; Bass & Riggio, 2006).

The literature suggests that the effects of transformational leadership on organizational adaptation occur through mechanisms such as learning, innovation, engagement, and trust (Bakker et al., 2023; Vera & Crossan, 2004). Transformational behaviors can also reinforce employees' trust and civic-minded behaviors, creating social conditions conducive to collective adaptation (Podsakoff et al., 1990). This relationship aligns transformational leadership with the dynamic capabilities perspective, according to which adaptation requires the ability to interpret changes, mobilize resources, and transform routines (Teece, 2007; Teece et al., 1997).

In the face of unexpected events, leadership also contributes to processes of *sensemaking* and *sensegiving (Gioia & Chittipeddi, 1991)*, helping to build shared meaning and coordinate action. This function becomes particularly relevant in extreme contexts, where leadership helps groups maintain direction and coordinated, y action under pressure (Hannah et al., 2009). Thus, the interplay between transformational leadership, learning mechanisms, and adaptive capacities supports the following proposition:

> ***Proposition 1:*** *Transformational leadership positively influences organizational resilience by reinforcing shared vision, trust, learning, and responsiveness to uncertainty.*

4.2 Learning, Innovation, and Dynamic Capabilities as Explanatory Mechanisms

The relationship between transformational leadership and organizational resilience should not be understood as direct and linear. The effects of leadership translate into adaptive capacities through organizational mechanisms, notably learning, innovation, knowledge sharing, structural flexibility, and the ability to reconfigure resources (Bakker et al., 2023; Vera & Crossan, 2004).

The dynamic capabilities perspective supports this argument by demonstrating that, in changing environments, organizations need to identify opportunities and threats, mobilize resources, and transform routines to maintain their competitive capacity (Teece, 2007; Teece et al., 1997). Resilience thus depends not only on the availability of resources but also on the ability to recombine and adapt them in the face of new circumstances, aligning with the logic of reconfiguration underlying dynamic capabilities (Eisenhardt & Martin, 2000; Zahra et al., 2006).

Transformational leadership can foster these mechanisms by encouraging experimentation, cross-functional learning, innovation, and openness to change. In SMEs, this relationship is particularly relevant, as the proximity between leaders and employees can facilitate the flow of knowledge and accelerate the transformation of learning into organizational responses. Thus, learning, innovation, and the reconfiguration of resources constitute mechanisms through which transformational leadership can contribute to the development of organizational resilience. On a broader level of innovation ecosystems, recent evidence based on the Global Innovation Index reinforces the importance of knowledge creation and innovation for the performance of innovation systems (Semião, Farinha, et al., 2026).

> ***Proposition 2:*** *The relationship between transformational leadership and organizational resilience is reinforced by mechanisms of organizational learning, innovation, and resource reconfiguration.*

4.3 Organizational Resilience and Business Performance

Organizational resilience can contribute to business performance by enabling organizations to anticipate threats, preserve critical operations, adjust processes, and mobilize responses to changes in the environment. As a dynamic capability, resilience is not limited to recovery after a disruption; it also involves learning, adaptation, and the transformation of organizational practices (Duchek, 2020; Hillmann & Guenther, 2021; Williams et al., 2017).

These capabilities can translate into business results through operational continuity, the protection of relationships with customers and suppliers, responsiveness to the market, and the exploitation of new opportunities. Recent studies suggest that resilience and innovation can function as strategic capabilities associated with performance in changing environments (Do et al., 2022; Garrido-Moreno et al., 2024). Organizations capable of adapting and reconfiguring resources under adversity are better positioned to preserve value and sustain performance.

However, resilience should not be automatically equated with superior performance. Excessive preservation of existing structures can hinder necessary transformations, and adaptive responses may entail short-term costs. The positive effect of resilience therefore depends on the ability to balance continuity and change, efficiency and exploration, allowing the organization to preserve essential functions while learning and renewing itself. Based on this argument, we propose:

> ***Proposition 3:*** *Organizational resilience positively influences business performance, especially when it enables the combination of operational continuity, learning, and strategic renewal.*

4.4 The Mediating Role of Organizational Resilience

The relationship between transformational leadership and business performance should not be understood as automatic. Although transformational leadership is associated with different levels of performance (Banks et al., 2016; Wang et al., 2011), its effects tend to occur through intermediate organizational mechanisms, such as learning, innovation, engagement, trust, and the capacity for change (Bakker et al., 2023; Vera & Crossan, 2004). In this sense, leadership creates social, cognitive, and behavioral conditions that foster the development of adaptive capacities.

Organizational resilience may serve as the mechanism through which these conditions translate into performance. By integrating capabilities for anticipation, response, and adaptation (Duchek, 2020), it enables the transformation of shared vision, learning, and resource mobilization into operational continuity, flexibility, and strategic renewal. This interpretation is consistent with the dynamic capabilities perspective, according to

which advantage in changing environments depends on the ability to identify changes, mobilize resources, and reconfigure routines (Teece, 2007; Teece et al., 1997).

Thus, the model proposes a theoretical sequence in which transformational leadership fosters organizational resilience, which, in turn, contributes to business performance. Resilience functions as the mediating mechanism through which leadership practices are converted into organizational capabilities that impact performance.

> ***Proposition 4:*** *Organizational resilience positively mediates the relationship between transformational leadership and business performance.*

4.5 Social Uncertainty as a Moderating Condition

Social and environmental uncertainty constitutes a contextual condition that can alter the relevance of transformational leadership and organizational resilience to business performance. In relatively stable environments, organizations can rely more heavily on existing routines, formal planning, and operational efficiency. As unpredictability increases, however, capabilities related to interpretation, learning, flexibility, and adaptation become more relevant, since organizations face greater difficulty in anticipating changes and defining appropriate responses (Milliken, 1987; Packard & Clark, 2020).

In this context, transformational leadership may take on greater importance by facilitating the interpretation of change, mobilizing employees, and promoting adaptive responses, while resilience enables organizations to absorb disruptions, adapt routines, and preserve critical organizational functions. Uncertainty may thus increase the relevance of the adaptive capabilities that underpin the proposed relationships between transformational leadership, organizational resilience, and business performance.

However, this effect should not be viewed as unlimited. Extreme levels of uncertainty can reduce available resources, increase pressure on employees, and hinder the ability to respond. This condition is particularly relevant in SMEs, where financial, human capital, or organizational capacity constraints may limit the translation of leadership and resilience into results. Thus, uncertainty can increase the need for adaptive capacities without, in and of itself, guaranteeing their effectiveness.

> ***Proposition 5:*** *Social and environmental uncertainty moderates the relationship between transformational leadership, organizational resilience, and business performance, increasing the relevance of adaptive capacities but potentially limiting their effects when pressure exceeds available resources.*

4.6 Digital Capabilities and Human Capital as Complementary Conditions

Digital transformation adds a significant dimension to the relationship between leadership, resilience, and performance. Digital technologies can improve environmental monitoring, data analysis, communication, operational flexibility, and customer proximity, thereby enhancing the organization's ability to identify changes and respond quickly. However, the adoption of technology does not automatically produce these effects; it depends on the existence of skills, organizational processes, and a learning-oriented culture (Matarazzo et al., 2021; Verhoef et al., 2021).

In this context, skilled human capital complements digital capabilities by enabling information and technology to be transformed into knowledge, learning, and organizational action. Transformational leadership can facilitate this process by reducing resistance to change, encouraging experimentation, and promoting alignment between technology, skills, and strategic objectives. In this way, digital capabilities and human capital reinforce the conditions through which leadership can contribute to organizational adaptation and resilience.

This relationship takes on particular importance in the Portuguese context, where challenges persist regarding the adoption of artificial intelligence by companies and the development of digital skills (European Commission, 2025). Thus, the ability to transform digitalization and human knowledge into learning and strategic response constitutes a complementary condition for organizational resilience to translate into performance.

> ***Proposition 6:*** *Digital capabilities and skilled human capital reinforce the effect of transformational leadership on organizational resilience and increase the likelihood that resilience will translate into business performance.*

5. Proposed Conceptual Model

Figure 1 summarizes the relationships outlined in the six theoretical propositions. The model begins with transformational leadership as a precursor to organizational resilience (P1), a relationship supported by

explanatory mechanisms, including *sensemaking*, organizational learning, trust, employee engagement, innovation, and resource reconfiguration (P2). Organizational resilience, in turn, contributes to business performance (P3) and plays a mediating role in the relationship between transformational leadership and performance (P4).

The model also incorporates social and environmental uncertainty as a contextual factor that influences the relationships among leadership, resilience, and performance (P5). Digital capabilities, information quality, the maturity of management systems, and skilled human capital emerge as complementary conditions that support the explanatory mechanisms and the capacity for organizational adaptation, with digital capabilities and skilled human capital specifically addressed in P6.

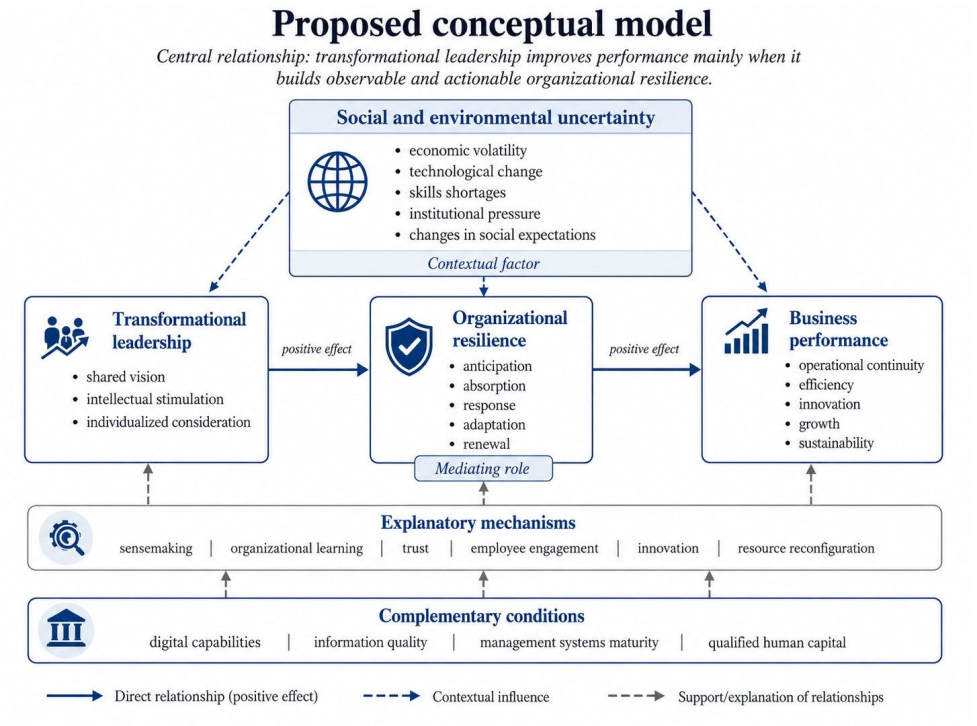


Figure 1: Proposed conceptual model

The conceptual model organizes the main pathways through which transformational leadership can contribute to business performance in contexts of uncertainty.For this proposal to be developed in future research, it is important to translate the central concepts into observable and empirically testable dimensions. Table 2 therefore systematizes some possibilities for operationalizing the constructs, serving as a starting point for quantitative, qualitative, or mixed-methods studies.

Table 2: Suggestions for Future Empirical Operationalization

Variable	Role in the model	Examples of indicators	Analytical suggestion
transformational leadership	Antecedent	MLQ scales/adapted; vision; intellectual stimulation; individual support; communication of change.	CFA/PLS-SEM; analysis of reliability and validity.
Organizational resilience	Mediator	Risk anticipation; response speed; operational continuity; post-crisis learning; process adaptation.	Mediation; bootstrapping; hierarchical or multidimensional model.
Social/environmental uncertainty	Moderator/context	Perception of volatility; market ambiguity; skills shortage; technological/regulatory pressure.	Moderation; multi-group analysis by uncertainty intensity.
Digital capabilities and human capital	Complementary conditions	Digital adoption; data usage; digital skills; employee qualifications; continuing education.	Moderation or sequential mediation.
Business performance	Outcome	Sales growth; productivity; profitability; innovation; customer satisfaction; operational continuity.	Combination of objective data and subjective scales.

6. Discussion

The proposed model positions transformational leadership not only as an interpersonal style but as a capability that fosters organizational adaptation. This is consistent with literature linking transformational leadership to mobilization, learning, trust, and change (Banks et al., 2016; Wang et al., 2011; Bakker et al., 2023; Vera & Crossan, 2004). Under high social uncertainty, its relevance lies in transforming ambiguity into shared interpretation and organized action.

The first theoretical contribution integrates transformational leadership and organizational resilience through dynamic capabilities. Resilience involves anticipation, response, learning, and adaptation (Duchek, 2020; Hillmann & Guenther, 2021; Williams et al., 2017), while dynamic capabilities emphasize identifying change, mobilizing resources, and reconfiguring routines (Teece, 2007; Teece et al., 1997). The model links these perspectives by proposing transformational leadership as a microfoundation of learning, experimentation, trust, and reconfiguration that supports organizational resilience.

The second contribution consists of clarifying the mediating role of resilience. Rather than assuming that leadership directly produces better results, the model proposes that its effects on performance depend on the development of organizational capacities for anticipation, response, learning, and renewal. This interpretation complements the evidence linking transformational leadership to performance (Banks et al., 2016; Wang et al., 2011) and aligns it with the literature that relates resilience and adaptive capacities to performance in changing environments (Do et al., 2022; Garrido-Moreno et al., 2024).

The third contribution contextualizes these relationships within Portuguese SMEs. Global uncertainty, productivity demands, digital transformation, and skills remain relevant to the Portuguese business landscape (European Commission, 2025; OECD, 2026). Proximity between leadership and operations can facilitate rapid responses, whereas centralized decision-making, skills shortages, and limited process formalization may hinder learning and adaptation. Digital capabilities and human capital are therefore important complementary conditions because digital transformation depends on the interplay between technology, skills, processes, and organizational change (Matarazzo et al., 2021; Verhoef et al., 2021). Recent evidence also indicates that public funding for R&D&I can facilitate open innovation and collaboration with universities and research centers, expanding access to external knowledge and networks in Portuguese SMEs (Semião, Nunes, et al., 2026).

From a practical standpoint, the model suggests four complementary priorities for Portuguese managers: develop leaders who communicate vision, engage employees, and foster critical thinking; establish resilience routines for risk identification, post-incident review, and structured learning; strengthen digital capabilities and information quality for situational awareness and faster decisions; and evaluate performance multidimensionally, combining financial indicators with response, learning, innovation, and operational continuity.

Finally, the model does not assume that transformational leadership or resilience produce positive effects in all circumstances. The effectiveness of leadership depends on organizational and contextual conditions, while resilience implies adaptation and renewal—not merely a return to the previous state (Duchek, 2020; Williams et al., 2017). The strategic challenge, therefore, lies in balancing stability and transformation, preserving essential functions while changing routines, competencies, and business models when the context demands it.

7. Conclusion

This article proposes a conceptual framework on the relationship between transformational leadership, organizational resilience, and business performance in contexts of social uncertainty, with a special focus on Portuguese companies. The analysis suggests that transformational leadership can contribute to building resilience through a shared vision, trust, learning, innovation, and the reconfiguration of resources. Resilience, in turn, plays a mediating role between leadership and performance by transforming these mechanisms into capacities for anticipation, response, adaptation, and renewal.

The model adds two relevant dimensions to this relationship. On the one hand, social and environmental uncertainty functions as a contextual condition, increasing the relevance of adaptive capabilities, although extreme levels of pressure may limit their effectiveness. On the other hand, digital capabilities and skilled human capital function as complementary conditions that reinforce the organization’s ability to transform leadership and learning into resilience and performance.

Organizational resilience is thus conceptualized as a dynamic meta-capacity balancing stability and change, extending beyond recovery to emphasize learning from adversity, resource reconfiguration, and sustained performance in unstable environments. In the Portuguese context, this perspective takes on particular relevance given the significant role of SMEs, productivity challenges, the digital transition, and exposure to social, economic, and technological pressures.

In summary, in contexts of uncertainty, business performance depends not only on the ability to anticipate change but also on building organizations prepared to learn, adapt, and act quickly. Transformational leadership can contribute to this process when combined with organizational capabilities, human capital, digital resources, and management practices that enable resilience to be transformed into an effectively actionable capability.

8. Limitations and Future Research Agenda

The main limitation of this study stems from the integrative review approach adopted. Although oriented toward conceptual construction, with an in-depth analysis of 15 articles and the identification of 45 themes, it did not follow a systematic protocol for literature identification, screening, and selection, such as PRISMA, limiting the scope, replicability, and exhaustive coverage of the relevant literature.

A second limitation stems from the conceptual nature of the model, which requires empirical validation. Future research could test it in Portuguese companies, particularly SMEs, using PLS-SEM or covariance-based SEM to analyze the mediation of organizational resilience and the moderation of social uncertainty. Longitudinal studies would also be relevant, considering the temporal nature of resilience.

Multiple case studies could deepen the understanding of how leaders of Portuguese SMEs interpret shocks, mobilize employees, and alter processes, allowing mechanisms such as sensemaking, trust, improvisation, informal learning, and the use of external networks to be observed. Comparisons across sectors with different levels of exposure to uncertainty could test the robustness of the proposed relationships.

Future research should also clarify the operationalization of performance by combining objective measures of sales growth, productivity, profitability, and survival with validated subjective measures of performance, innovation, responsiveness, and customer satisfaction, particularly relevant in SMEs when financial data are less accessible or comparable.

Ethics Declaration: I, Norberto Semião, as co-author of the article “Transformational Leadership, Organizational Resilience, And Business Performance In Contexts Of Social Uncertainty: A Conceptual Proposal For Smes In Portugal”, declare that no ethical authorization was used to carry out the same.

AI Declaration: I, Norberto Semião, as co-author of the article “Transformational Leadership, Organizational Resilience, And Business Performance In Contexts Of Social Uncertainty: A Conceptual Proposal For Smes In Portugal” declare that no AI was used to carry out the same.

References

Bakker, A. B., Hetland, J., Olsen, O. K., & Espevik, R. (2023). Daily transformational leadership: A source of inspiration for follower performance? European Management Journal, 41(5), 700–708. https://doi.org/10.1016/j.emj.2022.04.004

Banks, G. C., McCauley, K. D., Gardner, W. L., & Guler, C. E. (2016). A meta-analytic review of authentic and transformational leadership: A test for redundancy. The Leadership Quarterly, 27(4), 634–652. https://doi.org/10.1016/j.leaqua.2016.02.006

Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120. https://doi.org/10.1177/014920639101700108

Bass, B. M. (1985). Leadership and performance beyond expectations. Free Press.

Bass, B. M., & Riggio, R. E. (2006). Transformational leadership (2nd ed.). Psychology Press.

European Commission. (2025). 2025 SME Country Fact Sheet: Portugal. European Commission.

European Commission. (2025). Portugal 2025 Digital Decade country report. European Commission.

Conz, E., & Magnani, G. (2020). A dynamic perspective on the resilience of firms: A systematic literature review and a framework for future research. European Management Journal, 38(3), 400–412. https://doi.org/10.1016/j.emj.2019.12.004

Do, H., Budhwar, P., Shipton, H., Nguyen, H.-D., & Nguyen, B. (2022). Building organizational resilience and innovation through resource-based management initiatives, organizational learning, and environmental dynamism. Journal of Business Research, 141, 808–821. https://doi.org/10.1016/j.jbusres.2021.11.090

Duchek, S. (2020). Organizational resilience: A capability-based conceptualization. Business Research, 13, 215–246. https://doi.org/10.1007/s40685-019-0085-7

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? Strategic Management Journal, 21(10–11), 1105–1121. https://doi.org/10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E
Garrido-Moreno, A., Martín-Rojas, R., & García-Morales, V. J. (2024). The key role of innovation and organizational resilience in improving business performance: A mixed-methods approach. International Journal of Information Management, 77, 102777. https://doi.org/10.1016/j.ijinfomgt.2024.102777
Gioia, D. A., & Chittipeddi, K. (1991). Sensemaking and sensegiving in strategic change initiation. Strategic Management Journal, 12(6), 433–448. https://doi.org/10.1002/smj.4250120604
Hannah, S. T., Uhl-Bien, M., Avolio, B. J., & Cavarretta, F. L. (2009). A framework for examining leadership in extreme contexts. The Leadership Quarterly, 20(6), 897–919. https://doi.org/10.1016/j.leaqua.2009.09.006
Hillmann, J., & Guenther, E. (2021). Organizational resilience: A valuable construct for management research? International Journal of Management Reviews, 23(1), 7–44. https://doi.org/10.1111/ijmr.12239
Lengnick-Hall, C. A., Beck, T. E., & Lengnick-Hall, M. L. (2011). Developing a capacity for organizational resilience through strategic human resource management. Human Resource Management Review, 21(3), 243–255. https://doi.org/10.1016/j.hrmr.2010.07.001
Linnenluecke, M. K. (2017). Resilience in business and management research: A review of influential publications and a research agenda. International Journal of Management Reviews, 19(1), 4–30. https://doi.org/10.1111/ijmr.12076
Matarazzo, M., Penco, L., Profumo, G., & Quaglia, R. (2021). Digital transformation and customer value creation in Made in Italy SMEs: A dynamic capabilities perspective. Journal of Business Research, 123, 642–656. https://doi.org/10.1016/j.jbusres.2020.10.033
Milliken, F. J. (1987). Three types of perceived uncertainty about the environment: State, effect, and response uncertainty. *Academy of Management Review, 12*(1), 133–143. https://doi.org/10.5465/amr.1987.4306502
Mithani, M. A. (2020). Adaptation in the face of the new normal. Academy of Management Perspectives, 34(4), 508–530. https://doi.org/10.5465/amp.2019.0054
Nunes, R., Simões, J., & Domingos, S. (2025). Does "green status" threaten an emerging telework regime? Proceedings of the European Conference on Knowledge Management, 26(1), 728–731. https://doi.org/10.34190/eckm.26.1.4057
OECD. (2026). OECD Economic Surveys: Portugal 2026. OECD Publishing.
Packard, M. D., & Clark, B. B. (2020). On the mitigability of uncertainty and the choice between predictive and nonpredictive strategy. Academy of Management Review, 45(4), 766–786. https://doi.org/10.5465/amr.2018.0198
Paul, J., & Criado, A. R. (2020). The art of writing a literature review: What do we know and what do we need to know? International Journal of Management Reviews, 22(4), 433–448. https://doi.org/10.1111/ijmr.12245
Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H., & Fetter, R. (1990). Transformational leader behaviors and their effects on followers' trust in the leader, satisfaction, and organizational citizenship behaviors. The Leadership Quarterly, 1(2), 107–142. https://doi.org/10.1016/1048-9843(90)90009-7
Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring organizational performance: Toward methodological best practice. Journal of Management, 35(3), 718–804. https://doi.org/10.1177/0149206308330560
Semião, N., Farinha, L., & Nunes, S. (2026). Knowledge creation and innovation: The key drivers of economic growth according to the Global Innovation Index. In L. Farinha, D. Raposo, J. J. Ferreira, M. Calvete Gaspar, M. L. Alves, & L. Serrano (Eds.), Sustainable innovations in mechanical engineering and management sciences (pp. 83–99). Springer. https://doi.org/10.1007/978-3-032-30372-1_4
Semião, N., Nunes, S., & Farinha, L. (2026). The relationship between open innovation and public funding in Portuguese SMEs: Impact on innovative capacity and collaboration within innovation ecosystems. In L. Farinha, D. Raposo, J. J. Ferreira, M. Calvete Gaspar, M. L. Alves, & L. Serrano (Eds.), Sustainable innovations in mechanical engineering and management sciences (pp. 127–143). Springer. https://doi.org/10.1007/978-3-032-30372-1_6
Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. Journal of Business Research, 104, 333–339. https://doi.org/10.1016/j.jbusres.2019.07.039
Stoverink, A. C., Kirkman, B. L., Mistry, S., & Rosen, B. (2020). Bouncing back together: Toward a theoretical model of work team resilience. Academy of Management Review, 45(2), 395–422. https://doi.org/10.5465/amr.2017.0005
Su, W., & Junge, S. (2023). Unlocking the recipe for organizational resilience: A review and future research directions. European Management Journal, 41(6), 1086–1105. https://doi.org/10.1016/j.emj.2023.03.002
Sutcliffe, K. M., & Vogus, T. J. (2003). Organizing for resilience. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), Positive organizational scholarship: Foundations of a new discipline (pp. 94–110). Berrett-Koehler.
Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of sustainable enterprise performance. Strategic Management Journal, 28(13), 1319–1350. https://doi.org/10.1002/smj.640
Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. Strategic Management Journal, 18(7), 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z
Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. British Journal of Management, 14(3), 207–222. https://doi.org/10.1111/1467-8551.00375
Vera, D., & Crossan, M. (2004). Strategic leadership and organizational learning. Academy of Management Review, 29(2), 222–240. https://doi.org/10.5465/amr.2004.12736080
Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. Journal of Business Research, 122, 889–901. https://doi.org/10.1016/j.jbusres.2019.09.022

Wang, G., Oh, I.-S., Courtright, S. H., & Colbert, A. E. (2011). Transformational leadership and performance across criteria and levels: A meta-analytic review of 25 years of research. Journal of Management, 37(1), 223–270. https://doi.org/10.1177/0149206310361342

Williams, T. A., Gruber, D. A., Sutcliffe, K. M., Shepherd, D. A., & Zhao, E. Y. (2017). Organizational response to adversity: Fusing crisis management and resilience research streams. Academy of Management Annals, 11(2), 733–769. https://doi.org/10.5465/annals.2015.0134

Zahra, S. A., Sapienza, H. J., & Davidsson, P. (2006). Entrepreneurship and dynamic capabilities: A review, model, and research agenda. Journal of Management Studies, 43(4), 917–955. https://doi.org/10.1111/j.1467-6486.2006.00616.x

Leading for Alignment: Integrating Internal Marketing and DEI for High-performance in MNEs

Ângela Sousa[1], Sofia Gomes[1] and Mafalda Nogueira[2]
[1]Research on Economics, Management and Information Technologies (REMIT), Universidade Portucalense Infante D. Henrique, Porto, Portugal
[2]CETRAD, UNIDCOM, IPAMLab, Porto, Portugal

angela.f.sousa@gmail.com
sofiag@upt.pt
mafalda.nogueira@universidadeeuropeia.pt

Abstract In the complex environment of multinational enterprises (MNEs), organisational performance increasingly depends on the strategic integration of internal marketing and Diversity, Equity, and Inclusion (DEI). This paper aims to examine how strategic leadership serves as the primary mechanism for aligning these two domains to drive high performance. The research method employs a multi-phase qualitative synthesis, combining a systematic literature review (SLR) with a narrative thematic analysis of peer-reviewed research across 2001–2026. The methodology utilised search strings across major academic databases (including Scopus and Web of Science) to identify studies at the intersection of Strategic Leadership, Internal Marketing, and DEI. Studies were filtered based on their relevance to the MNE context and their focus on longitudinal performance outcomes. The gathered data were then mapped onto a cross-theoretical framework, integrating the Service-Profit Chain, Dynamic Capabilities, and Institutional Theories, to identify recurring leadership behaviours and systemic patterns that facilitate cross-functional alignment. The results evidence that specific leadership behaviours and systemic strategies are essential for achieving high-performance alignment: i) Leadership Styles: Transformational and servant leadership are found to be most effective in fostering a supportive culture that promotes both employee engagement and inclusive workplace dynamics. ii) Systemic Integration: Effective alignment requires moving beyond symbolic gestures to institutionalise values through transparent communication, equitable reward systems, and the integration of DEI into performance metrics. iii) The Mid-Level Bridge: A critical finding is the translational role of mid-level managers, who are responsible for adapting global strategic mandates to local cultural and institutional realities. iv) Theoretical Grounding: The research bridges the Service-Profit Chain with Dynamic Capabilities and Institutional Theories to explain how leadership adaptability drives a dual competitive advantage, securing high-value talent retention while navigating complex, diverse global markets. The findings provide a roadmap for MNE practitioners to move from "performative" commitments to a unified strategy in which leadership intent, organisational systems, and employee experience are fully aligned, thereby helping them contribute to UN Sustainable Development Goals 8 and 10.

Keywords: Strategic leadership, Internal marketing, Diversity, Equity, and inclusion (DEI), Employee engagement, Multinational enterprises (MNEs)

1. Introduction

The present global business environment is defined by escalating volatility, institutional complexity, and changing workforce expectations (Ferraro, Hemsley, and Sands, 2023). To achieve sustained competitive advantage, multinational enterprises (MNEs) can no longer rely solely on market-facing strategies. Instead, organisational performance increasingly depends on the internal alignment of corporate values, employee experience, and operational execution (Ramesh et al., 2023).

Two fields have emerged as critical drivers of this internal environment: Internal Marketing (IM) and Diversity, Equity, and Inclusion (DEI). Internal marketing treats employees as internal customers and jobs as internal products, aligning individual motivations with organisational goals to enhance customer-centric service delivery (Ahmed and Rafiq, 2002). Concurrently, DEI frameworks focus on creating equitable systems that cultivate belonging, representation, and psychological safety within diverse workforces, requiring integrative approaches that rethink diversity strategies to combat systemic inequality (DiTomaso, 2024). Despite their complementary goals, internal marketing and DEI are frequently managed in corporate silos. Internal marketing is often isolated within corporate communications, while DEI is relegated to compliance or standalone human resource groups. This fragmentation leads to organisational friction, employee cynicism, and "performative compliance," in which public commitments to inclusion, such as those visible in recruitment materials (Alahakoon et al., 2024), fail to translate into actual employee experiences. Strategic leadership is the essential mechanism for bridging these domains, as it entails the ability to visualise, adapt, and drive strategic change across an entire organisation while balancing short-term stability and long-term viability (Ashkevari and Ghasemi, 2023). In an MNE context, this leadership requirement is uniquely complex because strategies must transcend cultural, geographic, and institutional boundaries (Vallone, Elia and Greve, 2023).

This paper examines how strategic leadership explicitly integrates internal marketing orientation with DEI initiatives to drive systemic, high-performance alignment in MNEs. By synthesising recent academic insights, we address critical research gaps by clarifying how leadership can bridge the silos between Internal Marketing and DEI, what specific frameworks move organisations from performative compliance to genuine institutionalisation, and how middle managers translate global strategy into local practice. In doing so, this study makes a distinct theoretical contribution by explicitly bridging the often-siloed domains of internal marketing and DEI. It proposes a novel cross-theoretical framework, synthesising the Service-Profit Chain, Dynamic Capabilities, and Institutional Theories, to articulate not only why this alignment is necessary, but how it can be operationalised through strategic leadership. Crucially, it extends existing leadership models by conceptualising the 'Mid-Level Bridge,' identifying the translational role of middle managers as the critical mechanism for converting global strategy into local, authentic practice. Ultimately, this synthesis provides a clear, actionable model for practitioners and scholars to move beyond performative actions towards the systemic institutionalisation of DEI.

2. Theoretical Foundations

To map the integration of internal marketing and DEI under strategic leadership, this study draws upon a cross-theoretical matrix built upon three foundational lenses: the Service-Profit Chain, Dynamic Capabilities Theory, and Institutional Theory.

2.1 The Service-profit Chain

The Service-Profit Chain posits a direct, linear relationship between internal service quality, employee satisfaction, employee productivity, external service value, and ultimately, customer satisfaction and profitability (Heskett et al., 1994). Internal marketing operationalises this chain through mechanisms such as robust internal training and open communication, with recent studies confirming that targeted training is directly correlated with higher employee engagement and diversity awareness (Tudu and Singh, 2025). However, in modern global enterprises, "internal service quality" cannot be defined solely by technical tools or standard financial incentives; it must incorporate the psychological and structural conditions of equity and inclusion (Ramesh et al., 2023). When strategic leaders embed DEI into the internal marketing framework, they enhance internal service quality by guaranteeing that all employees, regardless of demographic or geographic background, experience psychological safety, fairness, and structural support. This holistic internal quality, often fostered through servant leadership approaches that prioritise employee empowerment and well-being (Eva et al., 2019), drives heightened affective commitment, which is the primary driver of service excellence and long-term talent retention.

2.2 Dynamic Capabilities Theory

Dynamic Capabilities Theory explains how firms maintain a competitive edge by continuously sensing opportunities, seizing those opportunities, and transforming or reconfiguring their resource configurations to adapt to changing external environments (Teece, 2014). In this study, the strategic integration of IM and DEI is conceptualised as a high-order dynamic capability. A diverse workforce provides an MNE with a wide array of cognitive perspectives and localised insights. However, workforce diversity alone does not yield a competitive advantage without internal marketing systems that actively engage, recognise, and mobilise this talent. Strategic leadership acts as the orchestrator that reconfigures corporate structures to support managerial ambidexterity, that is, the ability to balance standardised global efficiencies with localised, inclusive human resource adaptations (Ramesh et al., 2023). This adaptability allows MNEs to secure high-value global talent and rapidly pivot in complex international markets.

2.3 Institutional Theory

Institutional Theory asserts that organisations are profoundly shaped by their regulatory, normative, and cognitive-cultural environments, forcing them to align with external expectations to secure social legitimacy. MNEs operate across highly diverse institutional landscapes, frequently experiencing institutional distance and conflicting pressures between home-country standards and host-country realities (Beugelsdijk et al., 2018; Vallone, Elia and Greve, 2023). Many firms attempt to resolve these tensions through superficial, symbolic adoptions of popular values like DEI. Institutional Theory reveals that true strategic alignment requires moving beyond performative metrics to deep institutionalisation. Strategic leaders must navigate these institutional variations, leveraging localised managerial networks to translate global strategic mandates into legitimate, culturally congruent local practices without compromising core organisational values.

3. Methodology

This paper adopts a multi-phase qualitative synthesis, combining a systematic literature review (SLR) methodology with a narrative thematic analysis to evaluate literature spanning 2001-2026. The review protocol was adapted from established methodologies for mapping intellectual territories and extracting systemic insights in management science.

Sample selection and search protocol. The search was conducted using Web of Science (WoS) and Scopus databases. The keywords related to the topic (title, abstract, and keywords) were defined as follows: ("multin*" OR "MNE*" OR "MNC*") AND ("strategic* leader*" OR "transformational leader*" OR "servant leader*") AND ("internal marketing" OR "internal market orientation" OR "employee engagement") AND ("DEI" OR "diversity" OR "equity" OR "inclusion" OR "gender" OR "cultural distance"). Furthermore, the search was also limited to i) Article or Early Access or Review Articles, ii) English language, and iii) until 1st of April 2026 (the date on which the database was extracted), resulting in 47 articles published from 1980 to early 2026, that were analyzed by thematic relevance, methodological rigour, and citation trends and are all included in this paper's references.

4. Results and Analysis

The qualitative synthesis revealed that the successful integration of internal marketing and DEI under strategic leadership relies on four core themes: specialised leadership behaviours, structural institutionalisation, the translational capability of middle management, and explicit mapping back to global sustainability frameworks.

4.1 Leadership Styles Fostering Alignment

The literature highlights that the choice of leadership behaviour directly dictates the psychological contract and subsequent employee commitment levels. Two primary leadership models emerged as highly effective in driving high-performance alignment: i) Transformational Leadership: Transformational leaders align an enterprise by articulating a compelling, inclusive organisational vision that transcends regional and cultural silos (Bass, 1990). By utilising individualised consideration and intellectual stimulation, transformational leaders reshape employees' cognitive perceptions, framing diversity as an essential strategic resource rather than a compliance mandate (Akbari et al., 2017). This style minimises the negative friction associated with age-based or cultural faultlines within international teams, converting potential interpersonal conflict into shared productive energy and collaborative innovation (Kunze and Bruch, 2010). However, the efficacy of any leadership style is contingent on how it is perceived, and research highlights a critical gap in this area: male leaders often believe their practices are significantly more inclusive than their female employees perceive them to be (Ng and Bates, 2026). ii) Servant Leadership: Servant leadership complements transformational vision by explicitly prioritising the psychological well-being, professional development, and systemic empowerment of the workforce. As a systematic review by Eva et al. (2019) confirms, servant leaders operate through a mutual value exchange, viewing employees as internal customers whose holistic needs must be fulfilled. This orientation fosters deep trust, open vertical communication, and a heightened sense of belonging. The data demonstrates that combining transformational inspiration with servant empowerment yields the highest levels of affective commitment, providing the baseline organisational environment necessary for internal alignment.

4.2 Systemic Strategy and Institutionalisation

The research indicates that leadership intent is insufficient if it is not structured. MNEs frequently struggle with performative commitments where top executives announce DEI targets, but the internal marketing mechanisms continue to reward traditional, identical behavioural patterns. This lack of systemic integration fosters significant perception gaps, evidenced by findings that male leaders consistently overestimate the inclusivity of their own leadership when compared to the experiences of their female colleagues (Ng and Bates, 2026).

Moving beyond symbolic actions requires systematic institutionalisation. Indeed, evidence suggests that systemic interventions such as structured workplace training are crucial mechanisms for embedding DEI, as they foster both employee engagement and genuine diversity awareness (Tudu and Singh, 2025). This requires a focus on core operational pillars, including: i) Transparent Communication Systems: Internal marketing relies on accurate generation and dissemination of internal intelligence regarding employee needs and grievances. Strategic leaders must institute multidirectional, transparent communication channels that allow diverse employee cohorts to speak up to higher-ups without fear of career risk or social sanctions, a practice heavily influenced by supervisor behaviour (Detert and Treviño, 2010). ii) Equitable Reward and Recognition Architecture: Grounded in Equity Theory, employees evaluate organisational fairness by comparing their inputs against received outputs. Strategic leaders must ensure that both financial incentives and non-financial rewards

(such as career development opportunities, public validation, and international assignments) are transparently distributed and structurally insulated from homophily or implicit cultural biases, which is a core component of global talent management (McDonnell et al., 2010). iii) Integration of DEI into Performance Metrics: To achieve genuine alignment, DEI metrics must be removed from isolated human resource scorecards and integrated directly into the key core performance indicators (KPIs) of all business units. When strategic leadership ties management compensation and progression to inclusive team outcomes and equitable talent development, internal marketing orientation shifts from a theoretical framework to an operational reality (Ashkevari and Ghasemi, 2023).

4.3 The Translational Role of mid-level Management

A critical finding of this synthesis identifies mid-level managers as the essential "Mid-Level Bridge" in multinational structures. While executive leadership outlines global strategic mandates, these strategies must navigate localised regulatory frameworks, labour laws, and deep-seated cultural nuances. Mid-level managers act as the primary conduits who absorb global strategic intent and recontextualise it to local realities, particularly in foreign subsidiaries (Chung and Dahms, 2021). To operate this model effectively, mid-level managers must possess high cultural intelligence (CQ) and cognitive flexibility. Cultural intelligence acts as the vital psychological toolkit that allows these leaders to switch behavioural repertoire across borders. For instance, a global internal marketing campaign focused on radical employee empowerment may encounter resistance or subverted execution in localised subsidiaries characterised by high power distance. In such scenarios, the mid-level bridge leverages high CQ to adapt the execution style, utilising localised communication styles or pacing strategies to maintain the underlying strategic intent of equity and engagement, without creating institutional friction or alienation.

4.4 Contribution to United Nations Sustainable Development Goals (SDGs)

Finally, the strategic alignment of internal marketing and DEI is explicitly linked to global sustainable development frameworks, specifically contributing to UN Sustainable Development Goal 8 (Decent Work and Economic Growth) and Goal 10 (Reduced Inequalities). By treating the global workforce as valued internal customers and dismantling systemic barriers to career advancement, strategic leadership moves beyond basic corporate social responsibility. The research confirms that MNEs with explicit commitments to female representation in senior leadership positions demonstrate significantly higher overall sustainability performance scores (García-Sánchez et al., 2023; Saeed, Riaz and Baloch, 2023). Aligning corporate systems with SDGs 8 and 10 builds firm legitimacy on the global stage, mitigates risks associated with social schisms, and generates a sustainable, high-performance workforce ecosystem.

5. Discussion: Theoretical Implications and Critical Reflections

The integrated framework developed in this study (Figure 1) moves beyond a mere description of leadership practices to offer a dynamic, cross-theoretical model of strategic alignment. By synthesising the Service-Profit Chain, Dynamic Capabilities, and Institutional Theories, our analysis yields critical implications that challenge conventional thinking in MNE management.

First, our findings reconceptualise the alignment of internal marketing and DEI not as a matter of operational synergy, but as a high-order dynamic capability. The persistent fragmentation of these functions within MNEs can thus be seen as a fundamental structural flaw, rather than a simple inefficiency. While the literature acknowledges the separate importance of internal marketing and DEI, our framework argues that their siloed existence actively perpetuates the 'performative compliance' that so many firms struggle to overcome. This implies that genuine alignment is not achievable through incremental adjustments. It requires a radical rethinking of organisational design, demanding the integration of performance metrics and the formation of cross-functional teams in a way that is often antithetical to the rigid structures of many MNEs.

Second, the framework exposes the 'Mid-Level Bridge' as a critical organisational paradox. While we identify middle managers as the essential conduits for translating global strategy into local practice, their role is inherently fraught with tension. These managers are caught in a 'double bind', as they are squeezed between the pressure of global standardisation from headquarters and the need for culturally sensitive local adaptation. Our synthesis suggests that their success or failure represents the most critical inflexion point in the institutionalisation of DEI. Therefore, the practical implication for strategic leaders is profound, as it is not enough to purely 'empower' these managers. MNEs must create robust systems of psychological safety and provide specialised training in cultural intelligence to equip them to navigate these conflicting institutional pressures effectively challenge largely unaddressed in current leadership models.

Finally, this study challenges the notion that leadership styles like 'transformational' or 'servant' are universally sufficient. Our findings indicate that the effectiveness of any leadership style is severely moderated by systemic factors and perceptual gaps. A leader may articulate a transformational vision, but if the reward systems still favour consistent behaviours, or if female employees perceive the leader's actions as less inclusive than their male counterparts do (Ng and Bates, 2026), the leadership effort fails. True strategic alignment, therefore, is less about a leader's personal style and more about their ability to build an entire organisational system, from KPIs to communication channels, that ensures their inclusive intent manifests as a tangible and equitably perceived employee experience.

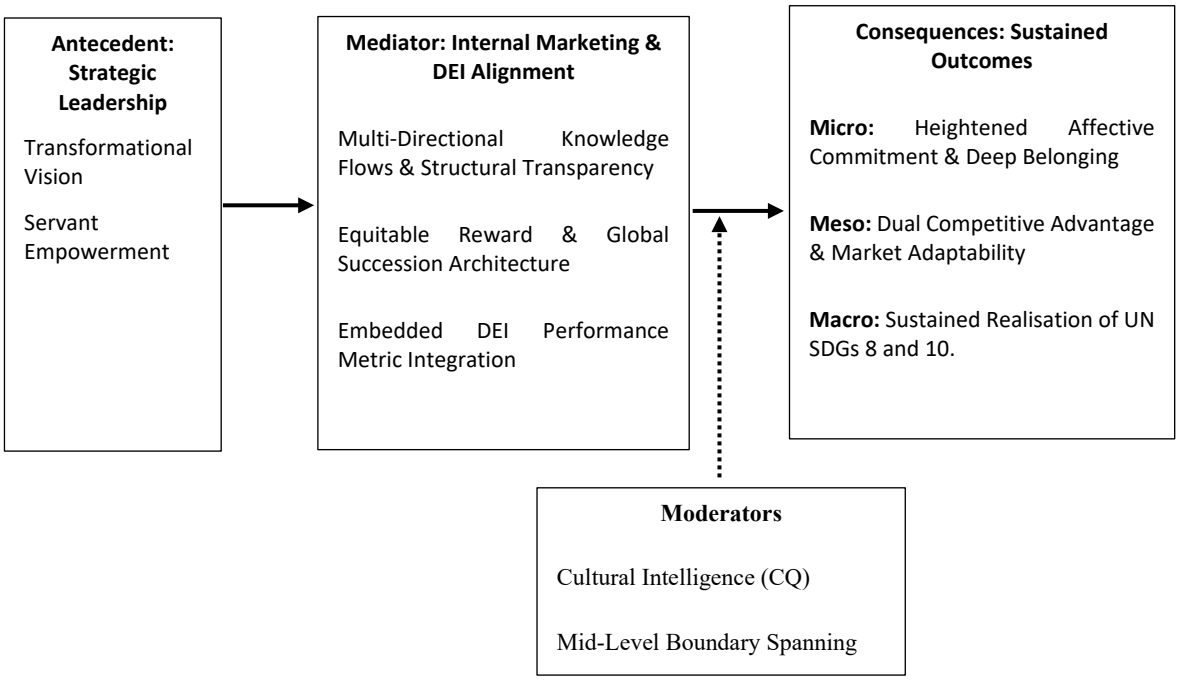


Figure 1: Integrated Framework Bridging Strategic Leadership, DEI Internal Marketing, and Sustainable Macro Outcomes via Cultural Intelligence

6. Conclusions, Limitations, and Future Research

This study began by addressing the persistent gap between strategic intent and lived experience in the context of DEI. Through a multi-phase qualitative synthesis, we argued that the successful integration of internal marketing and DEI is the defining feature of contemporary strategic leadership in MNEs. Our primary contribution is a new, integrated framework that posits this alignment not as a static outcome, but as a dynamic capability. We have demonstrated how this capability is initiated by strategic leadership, operationalised through systemic mechanisms, and ultimately arbitrated by the effectiveness of middle managers acting as a 'Mid-Level Bridge'.

However, the conclusions of this study must be examined in light of its limitations. As a qualitative synthesis of existing literature, our findings are contingent on the scope and quality of the reviewed papers. A more robust research agenda should therefore be pursued to build upon this foundational work. Future research should focus on empirically validating the proposed framework, ideally through a mixed-methods approach that combines large-scale quantitative surveys with in-depth qualitative case studies to test the hypothesised relationships while uncovering the nuanced mechanisms at play. Attention should be given to the 'Mid-Level Bridge'; future studies could explore the psychological strains and role conflicts experienced by these managers and quantify how different facets of their cultural intelligence moderate the success of DEI initiatives. Furthermore, to address the potential Western-centric bias in the available literature, comparative studies are needed to examine the framework's dynamics across MNEs from different institutional contexts (e.g., Global North vs. Global South) and industries. Finally, longitudinal research would be invaluable for tracking the evolution of this alignment as a dynamic capability over time, moving beyond static analysis to observe how these integrated strategies are developed, embedded, and sustained.

Ultimately, this paper provides a cross-theoretical roadmap for MNEs to move beyond performative compliance towards a state in which leadership intent, organisational systems, and employee experience are fully and authentically aligned. By doing so, organisations can unlock a dual competitive advantage: securing and retaining high-value global talent while building a truly equitable and high-performing workforce, thus contributing meaningfully to global sustainability goals.

Ethics Declaration The authors declare that ethical clearance was not required for this research, as this study relied exclusively on the secondary qualitative analysis and synthesis of peer-reviewed academic literature. No human participants were directly engaged, and no proprietary or confidential organisational data was collected.

AI Declaration The authors confirm that an advanced AI tool (Gemini 3 Flash) was utilised during the creation of this paper, specifically to synthesise findings into structured sections based on the target abstract specifications. All analytical insights, conceptual framework modelling, and final editing were rigorously executed and verified by the authors to ensure conceptual precision and academic integrity.

Funding: This work is funded by national funds through FCT - Fundação para a Ciência e a Tecnologia, I.P., under the Programme Contract UID/05105/2025. https://doi.org/10.54499/UID/05105/2025.

References

Abba, F. E. (2026) "Managing diversity in organization: A universal approach", *Equality, Diversity and Inclusion: An International Journal*, Advance online publication.

Aguinis, H. and Glavas, A. (2012) "What we know and don't know about corporate social responsibility: A review and research agenda", *Journal of Management*, Vol. 38, No. 4, pp. 932-968.

Ahmed, P. K. and Rafiq, M. (2002) Internal marketing: Tools and concepts for customer-focused management, 1st ed., Routledge.

Alahakoon, T., Beatson, A., Keating, B., Mathmann, F., Mortimer, G., & Worsteling, A. (2024) "Diversity, equity and inclusion statements in recruitment materials: A systematic review and research agenda", *Australasian Marketing Journal*, Vol. 32, No. 3, pp. 263-274.

Akbari, M., Seyyed Amiri, N., Imani, S., Rezaeei, N. and Foroudi, P. (2017) "Why leadership style matters: A closer look at transformational leadership and internal marketing", *The Bottom Line*, Vol. 30, No. 4, pp. 258-278.

Ashkevari, S. B. and Ghasemi, B. (2023) "The impact of strategic leadership on organizational performance with regard to the role of organizational innovation", *Journal of Organizational Behavior Research*, Vol. 8, No. 2, pp. 40-53.

Barney, J. (1991) "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17, No. 1, pp. 99-120.

Bass, B. M. (1990) "From transactional to transformational leadership: Learning to share the vision", *Organizational Dynamics*, Vol. 18, No. 3, pp. 19-31.

Beugelsdijk, S., Kostova, T., Kunst, V. E., Spadafora, E. and van Essen, M. (2018) "Cultural distance and firm internationalization: A meta-analytical review and theoretical implications", *Journal of Management*, Vol. 44, No. 1, pp. 89-130.

Brooks, I. and Weatherston, J. (1997) The business environment: Challenges and changes, Prentice Hall.

Chung, H. M. and Dahms, S. (2021) "Leadership decisions in foreign subsidiaries of multinational family business groups", *The International Journal of Human Resource Management*, Vol. 32, No. 22, pp. 4629-4658.

Cooke, F. L., Schuler, R., & Varma, A. (2020) "Human resource management research and practice in Asia: Past, present and future", *Human Resource Management Review*, Vol. 30, No. 4.

Detert, J. R. and Treviño, L. K. (2010) "Speaking up to higher-ups: How supervisors and skip-level leaders influence employee voice", *Organization Science*, Vol. 21, No. 1, pp. 249-270.

DiMaggio, P. J., & Powell, W. W. (1983) "The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields", *American Sociological Review*, Vol. 48, No. 2, pp. 147-160.

DiTomaso, N. (2024) "Rethinking Woke and Integrative Diversity Strategies: Diversity, Equity, Inclusion and Inequality", *Academy of Management Perspectives*.

Dobbin, F., & Kalev, A. (2016) "Why diversity programs fail", *Harvard Business Review*, Vol. 94, No. 7, pp. 52-60.

Durand, R., & Vaara, E. (2009) "Causation, counterfactuals, and competitive advantage", *Strategic Management Journal*, Vol. 30, No. 12, pp. 1245-1264.

Eva, N., Robin, M., Sendjaya, S., Van Dierendonck, D. and Liden, R. C. (2019) "Servant leadership: A systematic review and meta-analysis", *The Leadership Quarterly*, Vol. 30, No. 1, pp. 111-132.

Farh, C. I., & Chen, G. (2021) "Central advice tied to HQ enhances inclusion for distant employees", *Academy of Management Journal*, Vol. 64, No. 2, pp. 560-585.

Ferraro, C., Hemsley, A. and Sands, S. (2023) "Embracing diversity, equity, and inclusion (DEI): Implications for brand strategy", *Business Horizons*, Vol. 66, No. 2, pp. 199-209.

Fitzsimmons, T., Yates, M. S., & Callan, V. J. (2026) "Holding the line: The existential threat to DEI language and values", *Equality, Diversity and Inclusion: An International Journal*, Advance online publication.

Forcadell, F. J., & Aracil, E. (2017) "Banks using CSR to fill institutional voids in education and inclusion", *Business & Society*, Vol. 56, No. 1, pp. 120-150.
García-Sánchez, I. M., Aibar-Guzmán, C., Núñez-Torrado, M. and Aibar-Guzmán, B. (2023) "Women leaders and female same-sex groups: The same 2030 Agenda objectives along different roads", *Journal of Business Research*, Vol. 157, 113582.
Gavetti, G. (2005) "Cognition and hierarchy: Rethinking the microfoundations of capabilities' development", *Organization Science*, Vol. 16, No. 6, pp. 599-617.
Hambrick, D. C., & Mason, P. A. (1984) "Upper echelons: The organization as a reflection of its top managers", *Academy of Management Review*, Vol. 9, No. 2, pp. 193-206.
Han, S. J., & Beyerlein, M. (2016) "Framing the effects of multinational cultural diversity on virtual team processes", *Small Group Research*, Vol. 47, No. 4, pp. 351-383.
Heskett, J. L., Jones, T. O., Loveman, G. W., Sasser, W. E., Jr. and Schlesinger, L. A. (1994) "Putting the service-profit chain to work", *Harvard Business Review*, Vol. 72, No. 2, pp. 164-174.
Hincapie, A., & Costa, P. (2024) "Leading for Inclusion: Intentional, participatory leadership practices sensitive to power dynamics", *Leadership Quarterly*, Vol. 35, No. 3.
Jang, S., & Ardichvili, A. (2020) "HRD plays a key role in executing CSR and sustainability", *Human Resource Development Review*, Vol. 19, No. 3, pp. 250-275.
Jooss, S., McDonnell, A., & Burbach, R. (2021) "Talent designation in practice: An equation of performance, potential, and mobility?", *The International Journal of Human Resource Management*, Vol. 32, No. 21, pp. 4551-4577.
Kraus, S., Breier, M., & Dasí-Rodríguez, S. (2020) "The power of systematic literature review in management research", *Management Review Quarterly*, Vol. 70, pp. 417-449.
Kunze, F. and Bruch, H. (2010) "Age-based faultlines and perceived productive energy: The moderation of transformational leadership", *Small Group Research*, Vol. 41, No. 5, pp. 593-620.
Lachance, E., & Parent, M. (2024) "Espoused values often missing from actual DEI policies; remain intuitive", *Journal of Business Ethics*, Vol. 190, No. 2, pp. 340-360.
McDonnell, A., Lamare, R., Gunnigle, P. and Lavelle, J. (2010) "Developing tomorrow's leaders: Evidence of global talent management in multinational enterprises", *Journal of World Business*, Vol. 45, No. 2, pp. 150-160.
Ng, E. S. and Bates, K. A. (2026) "The gender gap in gender-inclusive leadership practices: Men see it, but women don't", *Equality, Diversity and Inclusion: An International Journal*, Advance online publication.
Nishii, L. H. (2013) "The benefits of climate for inclusion for gender-diverse groups", *Academy of Management Journal*, Vol. 56, No. 6, pp. 1754-1774.
Paul, J., & Criado, A. R. (2020) "The art of writing literature review: What do we know and what do we need to know?", *International Business Review*, Vol. 29, No. 4.
Ramesh, P., Bhavikatti, V., Omnamasivaya, B., Chaitanya, G., Hiremath, S., Gondesi, H. S. and Kameswari, J. (2023) "Organisational adaptability: A study of the mediating role of leadership in the influence of strategies, complexity, and technology", *International Journal of Innovation Management*, Vol. 27, No. 7/8, 2350036.
Saeed, A., Riaz, H. and Baloch, M. S. (2023) "Pursuing sustainability development goals through adopting gender equality: Women representation in leadership positions of emerging market multinationals", *European Management Review*, Vol. 20, No. 2, pp. 274-287.
Shore, L. M., Randel, A. E., Chung, B. G., Dean, M. A., Holcombe Ehrhart, K., & Singh, G. (2011) "Inclusion and diversity in work groups: A review and model for future research", *Journal of Management*, Vol. 37, No. 4, pp. 1262-1289.
Siddaway, A. P., Wood, A. M., & Hedges, L. V. (2019) "How to do a systematic review: A best practice guide for conducting and reporting narrative reviews, meta-analyses, and meta-syntheses", *Annual Review of Psychology*, Vol. 70, pp. 747-770.
Tang, N., & Wang, Y. (2015) "Identifies 7 inclusion practices in China; context matters greatly", *International Journal of Human Resource Management*, Vol. 26, No. 4, pp. 450-470.
Teece, D. J. (2014) "A dynamic capabilities-based entrepreneurial theory of the multinational enterprise", *Journal of International Business Studies*, Vol. 45, No. 1, pp. 8-37.
Tudu, S. and Singh, P. (2025) "Employee engagement and training correlate with higher diversity awareness", *Journal of Workplace Learning*, Vol. 37, No. 2, pp. 120-140.
Vallone, T., Elia, S. and Greve, P. (2023) "International environmental complexity and the demand for generalists and specialists in executive selection", *Global Strategy Journal*, Vol. 13, No. 3, pp. 581-619.
Waterman, R. H., Peters, T. J., & Phillips, J. R. (1980) "Structure is not organization", *Business Horizons*, Vol. 23, No. 3, pp. 14-26.
Zupic, I., & Čater, T. (2015) "Bibliometric methods in management and organization", *Organizational Research Methods*, Vol. 18, No. 3, pp. 429-472.

Institutional Governance Quality as a Determinant of Energy Investments: Evidence from a Panel of 17 EU Countries

Anca-Violeta Toth and Camelia Iuliana Lungu
Bucharest University of Economic Studies, Romania

tothanca17@stud.ase.ro
camelia.lungu@cig.ase.ro

Abstract: The European energy transition requires the mobilisation of capital flows estimated at more than €1 trillion annually, highlighting the importance of institutional governance quality in attracting and sustaining energy investments. The ability of states to provide credible regulatory frameworks, governance effectiveness, and institutional stability has become relevant for financing energy infrastructure and supporting long-term investment decisions. Underscoring the institutional theory, this study investigates the relationship between institutional governance quality and energy sector investments for a balanced panel of 17 EU member-states over the 2010-2023 period. The analysis employs gross fixed capital formation in the energy sector (Energy GFCF) as the primary dependent variable, complemented by net foreign direct investment inflows (Net FDI). Institutional governance quality is measured using the Worldwide Governance Indicators (WGI) and an original OECD Composite Convergence Index (OCCI). The empirical analysis relies on two-way fixed effects and random effects panel models with country-clustered robust standard errors. The findings indicate that institutional governance quality is associated primarily with structural differences in energy investments across economies rather than with short-term annual variations within countries. While fixed effects estimations do not identify significant annual governance effects across EU countries, random effects models reveal a positive and significant structural relationship between governance quality and energy investments. Government effectiveness exerts a positive association on energy investment dynamics, suggesting that predictable and credible regulatory environments play an important role in energy capital allocation. Particular results are underscored for Central and Eastern European economies characterised by significant infrastructure needs and persistent institutional gaps. For Romania and Bulgaria, in process of joining OECD, institutional convergence is positively associated with both Energy GFCF and FDI inflows, suggesting that OECD accession reforms may function as a signalling mechanism for institutional investors. Overall, findings highlight the importance of institutional convergence for mobilising the investments required to support the European energy transition.

Keywords*:* Institutional governance quality, Energy investments, Energy GFCF, Foreign direct investment, Worldwide governance indicators, OECD institutional convergence

1. Introduction

Recent initiatives such as the European Green Deal and REPower EU have intensified the need for large scale investment in the energy sector. Expanding renewables energy capacity, modernising infrastructure and upgrading transmission and distribution networks require substantial and sustained capital mobilisation across Europe. Given the capital-intensive nature of energy projects and their long payback periods, investment decisions are highly dependent on regulatory stability and institutional quality. Several studies show that investors pay close attention to institutional governance quality, especially in sectors exposed to political and regulatory risks (Globerman & Shapiro, 2002; Buchanan et al., 2012). Bruno et al. (2021) argue that the EU investment advantage is not explained only by market integration. Institutional credibility and regulatory stability also play an important role. Consequently, the quality of governance has become an increasingly important factor in attracting and sustaining long-term investment.

However, the relationship between institutional governance and investment remains far from straightforward and does not appear to be uniform across countries. Investors operating in highly regulated sectors are more likely to react to sustained institutional credibility than to short-term policy changes. This is important in the energy sector, where investment projects usually involve long planning horizons and high regulatory exposure.

The issue is particularly important in Central and Eastern Europe, where energy infrastructure needs remain high and institutional differences compared to Western Europe are still visible (Dobrowolska et al., 2023). Such differences may affect not only the attractiveness of energy sectors for investors but also the ability of governments to implement and sustain long-term energy transition strategies. For countries undergoing institutional convergence, accession process can serve as signals of credibility, reducing perceived risks and strengthening investor confidence in future reforms.

Despite substantial research on governance and investment, evidence on investment in the energy sector remains limited. Most existing studies use aggregate investment indicators, such as FDI or GFCF, paying less

attention to investments made specifically in the energy sector. Consequently, the specific role of institutional governance quality in energy sector investment remains less understood.

For these reasons, this paper focuses on the relationship between institutional governance quality and energy investment across a balanced panel of 17 European Union member states over the period 2010-2023. Gross fixed capital formation in the energy sector serves as the primary investment dependent variable, complemented by net foreign direct investments as an alternative measure of investment dynamics. Institutional governance quality is measured through the Worldwide Governance Indicators (WGI), while an original OECD Composite Convergence Index (OCCI) is introduced in robustness analyses to capture reform commitment associated with OECD accession processes.

The study aims to answer three research questions: *RQ1. Does institutional governance quality influences energy investments primarily through internal variation or structural differences between economies?; RQ2. Which governance dimensions exert the strongest influence on energy investment?; and RQ3. Does institutional governance quality affect energy investments differently in Romania and Bulgaria (countries still in accession process) compared with the broader EU sample?*

The results suggest that institutional governance quality influences energy investments mainly through long-term structural differences between economies rather than through short-term country variation. Moreover, the individual governance dimensions do not affect investment decisions in the same way in the energy sector. In addition, the findings point to a stronger role of institutional convergence in countries undergoing active reform processes, such as Romania and Bulgaria.

The rest of the paper is structured as follows: Section 2 provides the literature review of seminal research on institutional governance quality and energy investments nexus. Section 3 describes the methodology, while the results of the study are presented in Section 4. The last section addresses conclusions on the main findings, along with their practical implications and the future research approaches.

2. Literature Review

The European energy transition has increased the need for long-term investment in energy infrastructure, renewable capacity, and production-system modernization. Achieving these objectives requires not only financial resources but also institutional conditions that reduce uncertainty and strengthen investor confidence. As a result, governance quality has become an important factor shaping investment decisions, particularly in sectors characterized by high regulatory exposure and long planning horizons.

A broad body of literature identifies institutional characteristics as key determinants of investment decisions through their effects on transaction costs, legal protection, and policy predictability. Studies show that stronger governance improves investment attractiveness and supports both domestic and foreign financing (Globerman & Shapiro, 2002; Buchanan et al., 2012; Gokceli, 2023). More recent evidence confirms that robust institutional governance continues to drive investment flows by reducing transaction costs and signalling regulatory credibility to international investors (Arogundade et al., 2026). In the specific context of the energy sector, Ouia and El Bettioui (2026) demonstrate that superior governance facilitates capital mobilization in large-scale energy projects by increasing regulatory clarity and policy credibility. At the supranational level, Bruno et al. (2021) further argue that the investment premium associated with EU membership reflects the benefits of deep institutional integration and regulatory stability.

Institutional theory suggests that governments influence economic decisions by reducing uncertainty and providing stable rules for investment (North, 1990). This perspective is particularly relevant for the energy sector, where projects are characterized by high capital intensity, long payback periods, and strong dependence on stable regulatory frameworks. Buterin et al. (2017) demonstrate that institutional reforms reducing transaction costs and increasing government efficiency are essential prerequisites for long-term infrastructure development. Similarly, Gokceli (2023) show that institutional quality significantly influences foreign direct investment flows, particularly in economies with strong regulatory frameworks. Together, these studies provide the theoretical basis for examining how governance quality and OECD institutional convergence influence energy investment decisions in the analysed panel of EU member states.

Evidence from European economies suggests that governance dimensions affect investment through different channels. Dobrowolska et al. (2023) show that regulatory quality is more closely associated with inward FDI, whereas the rule of law plays a stronger role in outward investment decisions. These findings suggest that composite governance indicators may mask important differences between institutional dimensions.

Recent evidence suggests that institutional effects emerge primarily through long-term structural processes rather than short-term policy changes. Investors in highly regulated sectors tend to respond more strongly to sustained improvements in governance than to annual fluctuations in institutional quality (Gokceli, 2023). Evidence from the energy sector further highlights this complexity. Governance quality appears to reduce the risks associated with foreign capital and facilitate sustainable investment allocation, while also supporting renewable energy development through stronger implementation capacity (Fang et al., 2024; Rafiq et al., 2025). Other studies suggest that domestic energy investment and FDI may respond to different institutional mechanisms (Ouia & El Bettioui, 2026).

The relationship between governance and investment is particularly important in transition economies, where institutional reforms may serve as credibility signals that reduce perceived investment risks. For economies undergoing OECD accession processes, institutional convergence may strengthen reform credibility and increase investor confidence. Triarchi et al. (2024) emphasize that political stability and rule of law significantly influence environmental policy implementation and transition objectives. In this sense, convergence toward OECD standards may operate as a signalling mechanism, influencing both domestic investment and foreign capital attraction in highly regulated sectors.

3. Research Methodology

This study examines the relationship between institutional governance quality and energy investments across European Union member states between 2010 and 2023. A panel approach allows the analysis of both cross-country differences and within-country changes over time (Globerman & Shapiro, 2002; Buchanan et al., 2012).

The analysis is based on a balanced panel of 17 EU member-states observed between 2010 and 2023. Countries were selected based on data availability across all variables for the full study period and on the economic relevance of their energy sectors. Ten EU member states were excluded: Hungary, due to exceptional FDI volatility related to multinational restructuring activities that could distort investment estimates, Ireland and Luxembourg, due to their status as financial centres with structurally distorted FDI flows, Malta and Cyprus, due to their very small economic size and incomplete energy investment data and Estonia, Latvia, Lithuania, Slovenia, and Croatia, due to incomplete Energy GFCF data for the studied period. The final sample consists of 238 country-year observations.

The selected timeframe captures several events likely to affect both institutional quality and investment decisions, including the COVID-19 pandemic, the 2022-2023 European energy crisis, and the launch of OECD accession negotiations for Romania and Bulgaria in 2022. These developments provide a relevant context for examining whether institutional governance quality continues to influence investment decisions during periods of heightened uncertainty and institutional change.

To respond to the three research questions, the empirical analysis incorporates variables already validated by previous literature. The econometric models examine how institutional governance quality relates to investment behaviour in the energy sector. Two dependent variables are examined separately, for *foreign and domestic investment indicators,* in order to capture different investment channels and institutional mechanisms (Ouia & El Bettioui, 2026). Net FDI, as a percentage of GDP, captures foreign investors' responses to institutional quality and is widely used in studies of governance and investment (Globerman & Shapiro, 2002; Dobrowolska et al., 2023). Gross fixed capital formation in the energy sector as a percentage of GDP (Energy GFCF) captures long-term domestic investment in energy infrastructure.

Institutional governance quality is measured using four out of the six WGI dimensions: Government Effectiveness (GE), Regulatory Quality (RQ), Rule of Law (RL), and Control of Corruption (CC). These indicators have direct relevance to investment decisions, regulatory predictability, and institutional credibility (World Bank, 2025). Political Stability and Voice and Accountability were excluded as they have a less direct relationship with technical energy infrastructure. This selective focus follows Buterin et al. (2017, p. 1579) to avoid the "distorted picture" often provided by aggregate indices. The distinction is further supported by Dobrowolska et al. (2023), who demonstrate that regulatory quality primarily drives inward FDI, whereas the rule of law is more critical for outward investment decisions. Following the WGI 2024 methodology revision (Kaufmann & Kraay, 2024), the four retained dimensions are further grouped into two composite indices: WGI_CAP = (GE + RQ)/2, capturing government capacity to formulate and implement sound policies, and WGI_INST = (RL + CC)/2, reflecting respect for institutions governing economic and social interactions. A simple average of all four dimensions (WGI_AVG) is also constructed as a baseline governance measure.

Further, the model includes GDP growth, the natural logarithm of GDP per capita (lnGDP_pc), Inflation and Trade openness as control variables, frequently associated with investment behaviour in previous literature (Globerman & Shapiro, 2002; Buchanan et al., 2012).

In addition to conventional governance indicators, the analysis incorporates an OECD Composite Convergence Index (OCCI), mainly used for robustness tests. The index follows the methodology proposed by Toth (2026) and measures cumulative adoption of 56 active OECD legal instruments grouped into three thematic domains: governance (24 instruments), finance and investment (22 instruments), and energy and nuclear (10 instruments) (https://legalinstruments.oecd.org). The final OCCI score is calculated as the arithmetic mean of three thematic sub-indices, each defined as the ratio of adopted to total instruments within that domain. Unlike annual governance indicators, OCCI captures long-term institutional reform commitment and is therefore used as a proxy for institutional credibility associated with OECD accession rather than short-term governance fluctuations.

The empirical analysis is based on two separate panel regression models with standard errors clustered by country, estimated for each dependent variable as follows:

Model 1:

$$Energy\ GFCF_{(it)} = \alpha + \beta_1 WGI_{(it)} + \beta_2 GDP\ growth_{(it)} + \beta_3 lnGDP\ pc_{(it)} + \beta_4 Inflation_{(it)} + \beta_5 Trade_{(it)} + \mu_i + \lambda_t + \epsilon_{(it)}$$

where: i = country, t = year; μ_i = country fixed effects; λ_t = year fixed effects; ε_{it} = idiosyncratic error term.

Model 2:

$$Net\ FDI_{(it)} = \alpha + \beta_1 WGI_{(it)} + \beta_2 GDP\ growth_{(it)} + \beta_3 lnGDP\ pc_{(it)} + \beta_4 Inflation_{(it)} + \beta_5 Trade_{(it)} + u_i + \epsilon_{(it)}$$

where: $u_i \sim N(0, \sigma^2_u)$ = country random effect; ε_{it} = idiosyncratic error term.

In both models, WGI denotes the institutional governance quality variable, which varies across specifications: WGI_AVG (composite average), individual dimensions (WGI_GE, WGI_RQ, WGI_RL, WGI_CC), composite indices (WGI_CAP, WGI_INST), or alternative measures (OCCI, WGI_AVG², WGI_AVG lagged). Each specification is estimated separately, replacing WGI with the relevant governance variable. Model selection between fixed and random effects is based on the Hausman test. Specifically, the two-way specification includes country fixed effects (μ_i), controlling for time-invariant cross-country heterogeneity (unobserved country-specific characteristics that remain relatively stable over time), and year fixed effects (λ_t), controlling for common shocks affecting all countries simultaneously. Fixed effects were selected for Energy GFCF ($p < 0.001$), while random effects were selected for Net FDI ($p = 0.785$).

Several diagnostic tests were conducted to assess model robustness. Serial correlation was examined using the Wooldridge test, heteroscedasticity through the Breusch-Pagan test, and multicollinearity using variance inflation factors (VIF). Cross-sectional dependence was additionally evaluated using the Pesaran CD test, given the possibility that common European shocks may influence all countries simultaneously. Country-clustered robust standard errors are applied throughout, ensuring that inference remains valid in the presence of within-country dependence.

Further, the two models were re-estimated for five robustness specifications (R1 to R5). R1 uses the alternative estimator for each model (random effects for Energy GFCF; fixed effects for Net FDI). R2 replaces WGI_AVG with the OCCI index. R3 introduces a quadratic governance term (WGI_AVG^2) to test for nonlinear threshold effects. R4 uses lagged governance values (one and two years) to account for delayed investment responses. R5 excludes Romania and Bulgaria to assess whether results are driven by OECD candidate countries.

4. Results

4.1 Descriptive Statistics, Correlations and Diagnostic Tests

Table 1 presents descriptive statistics for all variables included in the analysis, for the sample of 238 country-year observations. Energy GFCF ranges from 0.054% to 4.085% of GDP, suggesting that the importance of energy investment varies substantially across EU economies. Net FDI is much more volatile, ranging from -30.658% to 48.471% of GDP and showing the highest standard deviation among all variables. Governance

indicators also differ across countries, varying between -0.439 (min WGI_CC) and 2.445 (max WGI_CC), with a maximum standard deviation of 0.829. These data reflect persistent institutional differences within the EU member states included into the analysis. The OCCI ranges from 0 to 1 and captures different stages of OECD institutional convergence. This is particularly relevant for Romania and Bulgaria, where the accession process provides an opportunity to examine whether convergence-related reforms are associated with investment dynamics.

Table 1: Descriptive Statistics

Variable	Mean	Standard Deviation	Min	Max
Net FDI	2.805	7.548	-30.658	48.471
Energy GFCF	1.002	0.546	0.054	4.085
WGI_GE	1.124	0.715	-0.296	2.273
WGI_RQ	1.098	0.535	0.145	2.066
WGI_CAP	1.111	0.616	0.024	2.137
WGI_RL	1.100	0.662	-0.337	2.109
WGI_CC	1.052	0.829	-0.439	2.445
WGI_INST	1.076	0.739	-0.346	2.224
WGI_AVG	1.094	0.674	-0.161	2.116
GDP growth	1.568	3.126	-10.940	8.931
lnGDP_pc	10.308	0.584	8.833	11.147
Inflation	2.499	2.994	-1.736	15.325
Trade openness	102.836	37.568	50.923	204.056
OCCI	0.884	0.290	0.000	1.000

As expected, the pairwise correlations (not tabulated in here, but available upon request) the four governance dimensions are highly correlated with each other, suggesting that countries with stronger regulatory quality also tend to score higher on government effectiveness, rule of law, and control of corruption. To avoid multicollinearity issues, these indicators are introduced separately in the regression models. Governance measures show moderate negative correlations with Energy GFCF, while their associations with Net FDI are positive but weak. LnGDP_pc is positively correlated with most governance indicators, reflecting the close link between institutional quality and economic development. The OCCI displays a moderate negative correlation with Energy GFCF and almost no correlation with Net FDI.

Before estimating the regression models, several diagnostic tests were performed to assess models' suitability (Table 2). The Hausman test supports the use of fixed effects for the Energy GFCF model and random effects for the Net FDI model. The Wooldridge and Breusch-Pagan tests indicate serial correlation and heteroskedasticity, leading to the use of country-clustered robust standard errors. The Pesaran CD test suggests no cross-sectional dependence in the Energy GFCF model but indicates cross-sectional dependence in the Net FDI model. Finally, VIF values remain well below the conventional threshold of 10, suggesting that multicollinearity is not a concern.

Table 2: Diagnostic tests

Test	Dependent variable	Statistics	p-value
Hausman	Energy GFCF	chi2(5) = 61.311	< 0.001
Hausman	Net FDI	chi2(5) = 2.443	0.785
Wooldridge	Energy GFCF	chi2 = 60.602	< 0.001
Wooldridge	Net FDI	chi2 = 93.586	< 0.001
Breusch-Pagan	Energy GFCF	BP = 181.905	< 0.001
Breusch-Pagan	Net FDI	BP = 337.614	< 0.001
Pesaran CD	Energy GFCF	z = 0.246	0.806
Pesaran CD	Net FDI	z = 10.996	< 0.001

Test	Dependent variable	Statistics	p-value
VIF – WGI_AVG		5.089	
VIF – GDP growth		1.086	
VIF – lnGDP_pc		5.056	
VIF – Inflation		1.118	
VIF – Trade openness		1.118	

4.2 The Influence of Institutional Governance Quality on Energy Investments

To assess the relationship between institutional governance quality and energy investments in EU member states (RQ1), a fixed-effects model was estimated for Energy GFCF, while a random-effects model was estimated for Net FDI, based on the Hausman test results. Table 3 shows that the composite governance indicator is not statistically significant for Energy GFCF, suggesting that yearly changes in governance quality are not sufficient to generate immediate changes in domestic energy investment. By contrast, the governance indicator is positive and marginally significant for Net FDI, indicating that countries with better governance tend to attract higher levels of foreign investment. Given the long-term nature of energy investments, investors may respond more to persistent institutional conditions than to short-term fluctuations in governance indicators. This interpretation is consistent with Bruno et al. (2021), who highlight that the effects of institutional integration and regulatory stability tend to emerge gradually over time.

Table 3: Fixed Effects (Energy GFCF) and Random Effects (Net FDI)

Variable	Energy GFCF (FE) (Model1)	Net FDI (RE) (Model2)
WGI_AVG	0.0054	2.5538*
(SE)	*(0.3740)*	*(1.4891)*
GDP growth	-0.0035	0.1561***
(SE)	*(0.0117)*	*(0.0548)*
ln(GDP per capita)	-2.8273***	-2.8770**
(SE)	*(0.5399)*	*(1.3213)*
Inflation	0.0085	0.0867
(SE)	*(0.0167)*	*(0.1174)*
Trade openness	-0.0019	0.0100
(SE)	*(0.0083)*	*(0.0095)*
R^2 within	0.3182	0.0239

Note: N = 238 observations. *** p<0.01, ** p<0.05, * p<0.10

Table 4 examines governance effects on Energy GFCF (fixed effects) and Net FDI (random effects) across three levels of aggregation for WGI indices: individual, composite (WGI_CAP and WGI_INST), and overall average (WGI_AVG). This approach seeks to identify the governance dimensions that exert the strongest influence on energy investment, responding to RQ2. For Energy GFCF, none of the governance specifications produces statistically significant effects, confirming the pattern observed in Table 3. For Net FDI, government effectiveness is the most significant individual dimension, while WGI_CAP shows a marginal positive impact. These results suggest that aggregation matters: individual dimensions reveal differentiated effects that composite averages may obscure.

Table 4: WGI dimensions' influence on energy investments

WGI specification	Energy GFCF (FE)		Net FDI (RE)	
	Coef.	R^2 within	Coef.	R^2 within
A. Individual WGI dimensions				
WGI_GE	-0.2691	0.3249	3.2159**	0.0302
(SE)	*(0.1650)*		*(1.6020)*	
WGI_RQ	0.5335	0.3339	2.1485	0.0210

WGI specification	Energy GFCF (FE)		Net FDI (RE)	
	Coef.	R² within	Coef.	R² within
(SE)	*(0.3472)*		*(1.5069)*	
WGI_RL	-0.2150	0.3204	1.7938	0.0190
(SE)	*(0.3725)*		*(1.4928)*	
WGI_CC	0.1251	0.3190	1.7970*	0.0216
(SE)	*(0.2828)*		*(1.0469)*	
B. Composite indices 2×2 (WGI 2025 methodology: Aspects 2 and 3)				
WGI_CAP	0.0503	0.3183	3.0043*	0.0264
(SE)	*(0.3409)*		*(1.5906)*	
WGI_INST	-0.0505	0.3182	1.9904	0.0211
(SE)	*(0.4244)*		*(1.2970)*	
C. Overall average (4 dimensions)				
WGI_AVG	0.0054	0.3182	2.5538*	0.0239
(SE)	*(0.3740)*		*(1.4891)*	

Note: N = 238 observations. *** p<0.01, ** p<0.05, * p<0.10. Each row is a separate model. Controls included in all models. SE clustered by country.

Table 5 reports the results for the Romania & Bulgaria subsample, the two countries with OECD candidate status, and not full member. The findings respond to RQ3 showing that institutional governance quality affects energy investments differently in Romania and Bulgaria compared with the full EU sample. While the composite WGI indicator is significant only for Net FDI, the OECD Composite Convergence Index (OCCI) has a positive and highly significant effect on both Energy GFCF and Net FDI. These results suggest that, in economies undergoing institutional convergence, investors respond not only to the current quality of governance but also to credible signals of future reforms. The individual and composite WGI indices provide additional evidence of heterogeneous effects. Rule of Law is positively associated with Net FDI, while Control of Corruption is negatively associated with Energy GFCF and positively associated with Net FDI. By contrast, Regulatory Quality is negatively associated with Energy GFCF and insignificant for Net FDI. WGI_INST is marginally significant for Energy GFCF and highly significant for Net FDI, suggesting that the combination of rule of law and control of corruption represents a particularly relevant institutional channel for foreign investment in economies undergoing active reform.

Table 5: Romania & Bulgaria subsample

Specification	Coef.	R² within	Coef.	R² within
	Energy GFCF (FE)		Net FDI (FE)	
A. Overall governance indicators				
WGI_AVG	-3.6602	0.4581	2.9693***	0.3293
(SE)	*(2.6760)*		*(0.5451)*	
OCCI	4.6096***	0.4473	11.8530***	0.4484
(SE)	*(0.8198)*		*(0.0149)*	
B. Individual WGI dimensions				
WGI_GE	-0.0752	0.4319	-0.0092	0.3051
(SE)	*(2.2802)*		*(0.3042)*	
WGI_RQ	-4.6383***	0.5195	0.5458	0.3068
(SE)	*(0.7374)*		*(0.8973)*	
WGI_CC	-2.3768***	0.4550	2.4704**	0.3402
(SE)	*(0.4868)*		*(0.9688)*	
WGI_RL	0.2302	0.4320	5.6195***	0.3916

(SE)	*(1.8981)*		*(1.4120)*	
C. Composite indices 2×2 (WGI 2025 methodology)				
WGI_CAP	-2.4328	0.4554	0.2721**	0.3055
(SE)	*(2.9928)*		*(0.1189)*	
WGI_INST	-2.0118*	0.4412	4.5654***	0.3727
(SE)	*(0.9722)*		*(0.1856)*	

Note: N=28 obs. (2 countries × 14 years). *** p<0.01, ** p<0.05, * p<0.10. One-way FE (country effects).

Overall, the results indicate that institutional convergence and selected governance dimensions may play a stronger role in shaping investment decisions in OECD candidate countries than in the broader EU sample. The high and significant impact of OCCI on both Energy GFCF and Net FDI, compared to WGI indicators is consistent with the OECD accession context of the two countries. While annual changes in governance indicators remain relatively limited, the convergence process captures broader institutional commitments that may be more visible to investors. Similar arguments are advanced by Toth (2026), who documents an acceleration of OECD related reforms in Romania and Bulgaria after 2022. This may explain why investors appear to respond more strongly to institutional convergence than to short-term fluctuations in governance indicators. This pattern is consistent with institutional theory. North (1990) argues that stable and credible institutions reduce uncertainty and transaction costs, making countries more attractive to investors. Ouia and El Bettioui (2026) show that governance affects investment through domestic channels that vary with countries' levels of development, while Arogundade et al. (2026) show that the impact of institutional governance on FDI convergence differs across country groups rather than being uniform.

4.3 Robustness Tests

Table 6 tests the robustness of the main findings across five alternative specifications for both models simultaneously. Results remain broadly consistent with the baseline. Governance effects on Energy GFCF are not significant across any specification, while Net FDI shows marginal sensitivity to lagged governance, particularly at a two-year horizon. Excluding Romania and Bulgaria removes this sensitivity, suggesting that OECD candidate countries contribute disproportionately to the observed governance-FDI relationship.

Table 6: Robustness tests

Specification	Energy GFCF — Fixed Effects					Net FDI — Random Effects			
	N	Coef.	(SE)		R^2	Coef.	(SE)		R^2
R1 – Alternative model (RE; FE)	238	0.4893*	*(0.2679)*		0.1659	4.4170	*(6.4002)*		0.0103
R2 – OCCI	238	0.4195	*(2.0850)*		0.3186	1.0104	*(0.9950)*		0.0137
R3 – WGI_AVG linear	238	-1.2936	*(0.9910)*		0.3397	3.5039*	*(1.9292)*		0.0233
R3 – WGI_AVG²	--	0.7136*	*(0.3957)*		--	-0.3657	*(0.5769)*		--
R4 – WGI_AVG lag(1)	221	0.1129	*(0.5069)*		0.3183	2.6626*	*(1.3530)*		0.0225
R4 – WGI_AVG lag(2)	204	0.3557	*(0.5831)*		0.3271	2.8526**	*(1.1524)*		0.0278
R5 – Without Romania & Bulgaria	210	-0.0169	*(0.3779)*		0.1439	2.8402*	*(1.6913)*		0.0245

Note: *** p<0.01, ** p<0.05, * p<0.10. SE clustered by country.

5. Conclusions

This study examined the relationship between institutional governance quality and investment in the energy sector across 17 EU member states during 2010-2023. Using panel-data models, the analysis focused on Energy GFCF and Net FDI while also considering the role of OECD institutional convergence, measured with an original OCCI indicator.

The results indicate that institutional governance quality influences energy investment primarily through persistent institutional differences across countries rather than through short-term annual changes within countries. While governance indicators are generally not significant in fixed-effects estimations, positive relationships emerge in specifications that capture cross-country variation. This suggests that investors respond more strongly to stable institutional environments than to year-to-year fluctuations in governance

quality. The Romania-Bulgaria analysis provides additional evidence that institutional convergence may play a distinct role in economies undergoing reform. Unlike the full EU sample, the OECD Composite Convergence Index (OCCI) is positively associated with both energy investment and foreign direct investment. These findings suggest that investors pay attention not only to current institutional conditions but also to credible signals regarding future reforms and policy commitment. This finding is consistent with institutional theory. North (1990) argues that stable and predictable institutions reduce uncertainty for economic actors. Gokceli (2023) similarly shows that credible institutional frameworks support FDI attraction in OECD economies, while Buterin et al. (2017) argue that institutional reforms that lower transaction costs support broader economic growth in transition economies.

The study contributes to the literature in three ways. First, it highlights the difference between short-term governance dynamics and long-term institutional conditions. Second, it introduces OECD institutional convergence as a complementary perspective for understanding energy investment behaviour. Third, it provides evidence from Romania and Bulgaria, two countries currently engaged in the OECD accession process, where institutional convergence appears to be particularly relevant for investment decisions in energy. From a policy perspective, the findings suggest that attracting investment for the energy transition requires more than isolated reforms. Investors appear to value consistency, legal predictability, and credible long-term commitments. In candidate countries, progress toward OECD standards may strengthen confidence in the institutional environment and support both domestic and foreign investment.

Several limitations should be acknowledged. The analysis covers a limited number of EU countries and focuses on aggregate investment indicators. Future research could extend the sample as additional OECD candidate countries become available and examine specific energy technologies or investment channels. Further studies could also explore the mechanisms through which institutional convergence affects investor expectations and behaviour.

Acknowledgements

This paper was co-financed by The Bucharest University of Economic Studies during the PhD program.

Ethics Declaration: Ethical clearance was not required for the research.

AI Declaration: We declare that no authors used generative AI in scientific writing during the preparation of this work.

References

Arogundade, S., Mduduzi, B., Oyadeyi, O.O. and Khoza, S. (2026) "Institutional Governance and Global FDI Convergence: Examining the Impact of Institutional Quality on Investment Flows", *Journal of Public Affairs*, Vol.26, e70116. https://doi.org/10.1002/pa.70116

Bruno, R.L., Campos, N. F. and Estrin, S. (2021) "The Effect on Foreign Direct Investment of Membership in the European Union", *Journal of Common Market Studies*, Vol.59, No.4, pp.802–821. https://doi.org/10.1111/jcms.13131

Buchanan, B.G., Le, Q.V. and Rishi, M. (2012) "Foreign direct investment and institutional quality: Some empirical evidence", *International Review of Financial Analysis*, Vol.21, pp.81–89. https://doi.org/10.1016/j.irfa.2011.10.001

Buterin, V., Škare, M. and Buterin, D. (2017) "Macroeconomic model of institutional reforms' influence on economic growth of the new EU members and the Republic of Croatia", *Economic Research-Ekonomska Istraživanja*, Vol.30, pp.1572–1593. https://doi.org/10.1080/1331677X.2017.1355260

Dobrowolska, B., Dorożyński, T. and Kuna-Marszałek, A. (2023) "The quality of governance and its impact on FDI inflows. A comparative study of EU Member States", *Comparative Economic Research. Central and Eastern Europe*, Vol.26, No.3, pp.7–30. https://doi.org/10.18778/1508-2008.26.19

Fang, X., Yang, Z., Zhang, Y. and Miao, X. (2024) "Foreign direct investment and the structural transition of energy consumption: impact and mechanisms", *Humanities and Social Sciences Communications*, Vol.11, 1759. https://doi.org/10.1057/s41599-024-04280-y

Globerman, S. and Shapiro, D. (2002) "Global foreign direct investment flows: The role of governance infrastructure", *World Development*, Vol.30, No.11, pp.1899–1919. https://doi.org/10.1016/S0305-750X(02)00110-9

Gokceli, E. (2023) "Institutional Quality and Foreign Direct Investment: Evidence from OECD Countries", *Journal of Economics*, Vol.71, No.3, pp.222–257. https://doi.org/10.31577/ekoncas.2023.03.03

Kaufmann, D. and Kraay, A. (2024) "The Worldwide Governance Indicators: Methodology and 2024 Update", *World Bank Policy Research Working Paper Series*. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099005210162424110

North, D.C. (1990) Institutions, Institutional Change and Economic Performance, Cambridge University Press. https://doi.org/10.1017/CBO9780511808678

Ouia, N. and El Bettioui, R. (2026) “Governance Quality and Renewable Energy Investment in Emerging Markets: Evidence Against the FDI Mediation Hypothesis”, *International Journal of Digitalization and Applied Management*, Vol 3, No. 1. https://doi.org/10.23882/ijdam.26272

Rafiq, S., Paramati, S.R., Alam, M.S., Hafeez, K. and Shafiullah, M. (2025), “Does institutional quality matter for renewable energy promotion in OECD economies?”, *International Journal of Finance & Economics*, Vol.30, pp.477–492. https://doi.org/10.1002/ijfe.2926

Toth, A.V. (2026) “Institutional Convergence towards OECD standards and public governance quality: implications for the energy sector”, International Conference on Business Excellence (ICBE 2026), Bucharest, March 26-28. https://bizexcellence.ro/wp-content/uploads/2026/03/Draft-programme-ICBE-2026.pdf

Triarchi, E., Kolias, A. and Karamanis, D. (2024), “Political regime and governance on climate change: Evidence from the Western Balkan economies”, *Proceedings of the International Conference on Business Excellence*, Vol.18. https://doi.org/10.2478/picbe-2024-0105

World Bank (2025) “The Worldwide Governance Indicators: Revised Methodology for Measuring Governance Using Perception Data”, *The World Bank Development Economics Policy Indicators*. https://www.worldbank.org/content/dam/sites/govindicators/doc/The%20Worldwide%20Governance%20Indicators%202025%20Methodology%20Revision.pdf

How Does Supply Chain Finance Affect Sustainable Supply Chain Management? A Multiple Case Study of Chinese Baijiu Enterprises

Yingying Wang, Vasco Barroso Gonçalves and Elizabeth Reis
[1]Instituto Universitário de Lisboa (ISCTE-IUL), BRU-Business Research Unit, Lisbon, Portugal

wyy@alu.uestc.edu.cn
elizabeth.reis@iscte-iul.pt

Abstract: Against increasing sustainability pressures and financial constraints, this study uses three Chinese baijiu enterprises as cases to examine how Supply Chain Finance (SCF) is embedded in the value realization process of Sustainable Supply Chain Management (SSCM). The findings show that the firms adopt SCF through core-enterprise credit empowerment, distributor financing support, policy-based funding linkages, cash payment, internal financial platforms, and digital financing platforms. SCF alleviates financial constraints by forming financial, credit, and financial relationship resources, thereby strengthening foundational and dynamic supply chain capabilities. Firms then deploy these capabilities across the supply chain through assessment and incentives for upstream and downstream partners, encouraging the realization of comprehensive SSCM value. This study reveals the process mechanism through which SCF affects SSCM in a specific industry context and helps address the lack of SSCM research in emerging economies and the alcoholic beverage industry.

Keywords: Sustainable supply chain management, Supply chain finance, Resource orchestration theory, Dynamic capabilities, Emerging economies

1. Introduction

SSCM has become an important way for firms to respond to environmental regulation, resource constraints, and stakeholder pressures. Existing studies suggest that SSCM requires firms to integrate economic, environmental, and social objectives into supply chain activities and improve long-term performance through inter-organizational collaboration. (Ahi & Searcy, 2013; Carter & Rogers, 2008; Seuring & Müller, 2008). For Chinese baijiu enterprises, SSCM has strong practical relevance. Baijiu is a core component of China's traditional food industry. In recent years, however, the Chinese baijiu industry has shown a diverging pattern of declining output, rising revenue, and slowing profit growth, according to data from the China Alcoholic Drinks Association（CADA）and the National Bureau of Statistics of China. Its supply chain has long faced the three pressures of "high pollution, high consumption, and high inventory." Production involves wastewater, exhaust gas, and solid waste emissions; procurement is highly dependent on grain resources; and distribution is affected by overcapacity, channel inventory, and price inversion (CADA, 2024; National Bureau of Statistics of China, 2024; General Administration of Customs of China, 2025; annual reports of listed baijiu firms).

However, prior research indicates that financial constraints are a major barrier to the adoption of sustainability practices, and that insufficient buyer financial support may limit suppliers' participation in sustainable initiatives (Akbar & Ahsan, 2021). Bowen et al. (2001) argue that sustainability practices may not generate immediate gains in profitability or sales performance because they often involve high initial investment. Therefore, financial support is particularly important in SSCM implementation.

This issue is more pronounced in the baijiu industry. Baijiu enterprises are characterized by long production and ageing cycles, substantial capital occupation, and strong working-capital pressure across upstream and downstream actors (CADA, 2024; National Bureau of Statistics of China, 2024; General Administration of Customs of China, 2025; annual reports of listed baijiu firms). In the context of SSCM, stable financial flows are important not only for firms' own sustainability-related investment, but also for the ability of suppliers, farmers, distributors, and other supply chain partners to continue participating in sustainable practices (Akbar & Ahsan, 2021; Bowen et al., 2001). Thus, alleviating financial constraints in the development of SSCM has become an important issue that baijiu enterprises must address.

SCF provides an important entry point for addressing this issue. By coordinating financial flows, logistics flows, and information flows, SCF helps improve the financial condition of supply chain members and reduce financial risks (Caniato et al., 2016; Hofmann, 2009). It should not be understood only as a financing tool; rather, it should be analyzed within the processes of SSCM implementation, capability formation, and value realization.

However, the existing literature still provides limited explanation of the mechanism through which SCF affects SSCM. Empirical evidence remains particularly scarce in emerging economies and the alcoholic beverage industry (Jia et al., 2020; Sánchez-Flores et al., 2020).

Based on this practical problem and theoretical gap, this study focuses on Chinese baijiu enterprises and examines the impact of SCF on SSCM. Rather than treating SCF as an external financing tool, this study adopts Resource Orchestration Theory (ROT) as the main theoretical lens and integrates the dynamic capabilities perspective to analyze how SCF is embedded in the value realization process of SSCM in baijiu enterprises.

Accordingly, this study addresses the following two research questions:

RQ1: What SCF practices are adopted by baijiu enterprises?

RQ2: How does SCF affect SSCM in baijiu enterprises?

2. Theoretical Considerations

SSCM is an important research field that has developed from traditional supply chain management. Traditional supply chain management focuses mainly on coordinating material, information, and financial flows to improve operational efficiency and meet customer needs. In contrast, SSCM integrates economic, environmental, and social objectives into supply chain management and emphasizes long-term sustainable value creation through inter-organizational coordination and collaboration among supply chain partners (Ahi & Searcy, 2013; Carter & Rogers, 2008; Seuring & Müller, 2008). From the focal firm perspective, SSCM involves not only internal operations, but also the extension of sustainability requirements to upstream and downstream supply chain actors (Beske, 2012; Beske et al., 2014; Seuring & Müller, 2008).

Within this process, SCF provides an important conceptual basis for understanding financial flow management. SCF is commonly defined as a financial arrangement that matches financial flows with material and information flows, with the aim of improving the financial performance of supply chain participants and reducing financial risks (Caniato et al., 2016; Hofmann, 2009). SCF involves buyers, suppliers, financial institutions, while fintech firms and information service providers have also increasingly entered this ecosystem (Caniato et al., 2019; Chen et al., 2021). In sustainable supply chain contexts, Sustainable Supply Chain Finance (SSCF) extends this logic by linking financial instruments to transaction facilitation, reduced environmental and social impacts, and value creation for supply chain stakeholders (Jia et al., 2020; Tseng et al., 2018). SSCF can support suppliers in improving sustainability performance by providing incentives and resources, thereby facilitating the implementation of SSCM practices (Jia et al., 2020).

The SCF–SSCM relationship can be understood through supply chain capabilities. Supply chain capability refers to a firm's ability to collaborate with partners, improve information visibility, respond in real time, and enhance efficiency (Teece et al., 1997). In SSCM, sustainability performance requires firms to develop foundational and dynamic capabilities (Beske, 2012; Hong et al., 2018). Foundational capabilities include supply chain reliability, risk control, collaboration, information sharing, visibility, and cost efficiency (Ivanov, 2021; Scholten & Schilder, 2015). Prior studies suggest that SCF can strengthen foundational capabilities such as reliability, risk management, collaboration, and information sharing (Chen et al., 2017; Jia et al., 2020; Silvestre, 2015). Dynamic capabilities refer to the ability of supply chains to sense changes, integrate knowledge, develop partners, reconfigure resources, and adjust activities in changing environments (Defee & Fugate, 2010; Hong et al., 2018). Hong et al. (2018) found that dynamic capabilities partially mediate the relationship between SSCM practices and firm performance. Beske (2012) introduced the dynamic capabilities perspective into SSCM research and identified dimensions, including supply chain re-conceptualization, knowledge management, partner development, co-evolution, and reflexive control.

ROT further provides a theoretical framework for analyzing the relationship among resources, capabilities, and value realization. ROT argues that competitive advantage does not arise only from resource possession, but depends on how managers systematically structure, bundle, and leverage resources (Hitt et al., 2016; Sirmon et al., 2007). Resource structuring refers to forming and adjusting the resource base through acquisition, accumulation, and divestment. Resource bundling refers to transforming dispersed resources into organizational capabilities through stabilization, enrichment, and pioneering. Resource leveraging emphasizes mobilizing, coordinating, and deploying resources and capabilities to create value (Sirmon et al., 2007; Sirmon et al., 2011). Prior studies have applied ROT to sustainable supply chain research, showing that it can explain how firms promote sustainability by coordinating internal and external resources (Asante et al., 2022; Gong et al., 2018; Wong et al., 2015). Based on this literature, this study adopts ROT as the main analytical lens and integrates the SSCM dynamic capabilities framework to provide a conceptual foundation for the empirical analysis.

3. Methodology

To examine how SCF affects SSCM in Chinese baijiu enterprises, this study adopts a qualitative multiple-case study approach, which is suitable for investigating contemporary organizational phenomena in real-life contexts (Voss et al., 2002; Yin, 2009).

3.1 Data Collection

This study uses purposive sampling to select three leading Chinese baijiu enterprises as cases. Purposive sampling emphasizes the selection of information-rich cases that are highly relevant to the research questions, rather than statistical representativeness (Patton, 2014; Yin, 2009). The case selection was based on four criteria. First, the firms have publicly disclosed sustainability strategies or social responsibility practices and have continuously promoted SSCM. Second, they have rich SCF or financial service practices. Third, they are representative in the baijiu industry in terms of revenue scale and supply chain maturity. Fourth, all three firms are focal firms in the baijiu industry.

Data were collected mainly through semi-structured interviews, field observations, and secondary materials. Semi-structured interviews ensure consistency across research questions while allowing flexibility for follow-up questions based on interviewees' roles and case contexts (Qu & Dumay, 2011). To improve data richness and reliability, this study interviewed key informants related to SSCM and SCF, including senior managers, middle managers, and functional staff in procurement, production, distribution, quality management, environmental management, digitalization, and financial services (Eisenhardt & Graebner, 2007). This interviewee structure enabled the study to examine both the implementation of SSCM practices and how financial support, credit empowerment, financing arrangements, and digital financial tools are embedded in supply chain management activities. Since October 2024, this study has interviewed 30 participants (10 A from Alfa, 7 B from Beta and 13 C from Gama) through face-to-face interviews, group interviews, and online follow-up interviews.

The interview protocol was developed based on the research questions, literature review, and preliminary data analysis, and followed a funnel-shaped structure moving from broad to specific questions (Voss et al., 2002). The interviews explored firms' supply chain structures and sustainability strategies, and then examined the specific forms, participants, operating mechanisms, and impacts of SCF on sustainability performance. In addition to interview data, this study collected annual reports, social responsibility reports, ESG reports, internal documents, official website information, media reports, and field observation records to enable triangulation across data sources and enhance research credibility (Gibbert et al., 2008).

3.2 Data Analysis

Data analysis followed an abductive logic, iteratively integrating empirical findings with existing theoretical frameworks. The Gioia methodology (Gioia et al., 2013) was used to structure and code the interview data, generating first-order concepts, second-order themes, and aggregate dimensions. Within-case analysis was conducted first, followed by cross-case comparison. On the one hand, in-depth within-case analysis placed the SSCM and SCF practices of each case firm in its specific context, revealing their development processes and key characteristics. On the other hand, cross-case comparison identified common patterns and key differences across the case firms (Eisenhardt, 1989; Miles, 2014), thereby deepening understanding of how SCF affects SSCM through analytical generalization.

3.3 Cases Characterisation

This study examines three leading Chinese baijiu enterprises, referred to as Alpha, Beta, and Gamma. All three firms are core players in the baijiu industry, each with annual revenue exceeding RMB 20 billion, mature supply chain systems, and strong industry influence. Alpha and Gamma are strong-aroma baijiu producers, while Beta is a sauce-aroma baijiu producer, covering the main aroma types in the Chinese baijiu industry. All three firms have publicly expressed sustainability commitments and have continuously promoted SSCM practices. They have also implemented different forms of SCF services for suppliers, farmers, or distributors, providing a suitable context for analyzing how SCF affects SSCM.

4. Results

This section examines SCF's role in baijiu enterprises' SSCM from four aspects: SCF practices, resource structuring, capability bundling, and SSCM performance realization.

4.1 SCF Practices

The cross-case analysis shows that all three firms strategically use financial services in supply chain management. The SCF practices across the three cases share common features. First, the firms use their credit and external financial resources to obtain low-cost funds. Second, they support high-quality distributors through recommendation, guarantees, and pledge supervision. Third, they provide financing support to suppliers, distributions or internal member firms. At the same time, the three firms differ in their models. Alpha emphasizes platform-based and technology-enabled financing. It relies on core-enterprise credit to build an integrated online and offline financing platform, develops supplier financing products based on real transaction data, and uses the digital renminbi (e-CNY), China's central bank digital currency, together with blockchain, and smart contracts to ensure fund security and designated use. Beta adopts a differentiated empowerment model for upstream and downstream partners. Upstream, it helps farmers access government policy-based funding and uses cash payment to accelerate financial flow in raw material supply chain; downstream, it provides financing guarantees for distributors. Gamma relies on group credit, an internal finance company, and cooperation with external banks to provide low-cost funds for member firms and core distributors. It improves financing efficiency by recommending high-quality distributors and undertaking pledge supervision.

4.2 Financial and Credit Resources Structuring

SCF first operates as a process of resource structuring. It emphasizes acquisition and formation of resources that support strategic action, laying the foundation for subsequent capability development and value creation (Sirmon et al., 2007; Sirmon et al., 2011). In this study, SCF helps baijiu enterprises and supply chain partners develop financial and credit resources.

The cross-case comparison shows that SCF forms three types of resources during resource structuring. The first is financial resources. Low-cost funds, cash payments, policy-based funding linkages, and financing support alleviate financial pressure on suppliers, farmers, and distributors in procurement, production, inventory, and cash collection. The second is credit resources. Through their own credit, guarantees and recommendations, focal firms extend their credit capacity to upstream and downstream partners, reducing the difficulty for supply chain actors to obtain external financing. The third is financial relationship resources. Through internal finance companies, cooperation with external banks, and financing platforms, firms connect financial institutions, focal firms, and supply chain partners, forming stable financial resource networks. Thus, SCF not only provides financial support for focal firms, but also improves the resource conditions for supply chain partners to continue participating in SSCM.

4.3 Foundational and Dynamic Supply Chain Capabilities Bundling

The role of SCF goes beyond the formation of financial and credit resources. More importantly, it promotes capability formation through resource bundling. Resource bundling emphasizes the integration of dispersed resources into organizational capabilities through stabilization, enrichment, and pioneering (Sirmon et al., 2007; Sirmon et al., 2011). The case analysis shows that the bundling of financial services first strengthens foundational supply chain capabilities. Low-cost funds, cash payments, policy subsidies, and distributor financing support alleviate financial pressure on upstream and downstream actors, thereby enhancing supply chain reliability. Pledge financing, guarantees, and bank recommendation mechanisms strengthen relationships between focal firms and distributors, improving supply chain collaboration. Group credit, external financial resources, and platform-based financing reduce financing and transaction costs, improving cost efficiency. Meanwhile, Alpha uses blockchain, smart contracts, and digital RMB to enhance financial flow visibility.

On this basis, SCF influences the dynamic capabilities required for SSCM, mainly partner development and supply chain re-conceptualization. Beske (2012) regards partner development as an important dynamic capability in SSCM. In the cases, SCF alleviates financial constraints faced by farmers, suppliers, and distributors, thereby strengthening partners' ability to continuously participate in SSCM. Supply chain re-conceptualization is reflected in the expansion of financial service targets and approaches: Alpha expands its financial service scope through an online financing platform, Beta extends financial support to upstream farmers, and Gamma uses its internal finance company to explore businesses not yet fully covered by banks.

4.4 SSCM Performance Realization and Value Leveraging

After bundling capabilities, baijiu enterprises need to further mobilize, coordinate, and deploy the developed supply chain capabilities across upstream and downstream partners to realize comprehensive SSCM value. Resource leveraging emphasizes the transformation of existing resources and capabilities into concrete actions

and performance outcomes through mobilization, coordination, and deployment (Sirmon et al., 2007; Sirmon et al., 2011). The case analysis shows that baijiu enterprises mainly deploy supply chain capabilities to upstream and downstream partners through assessment, incentives, and resource allocation. For example, firms evaluate suppliers' performance in quality, environmental protection, delivery, and management, and link the results to future orders, relationship stability, and resource support. In this process, SCF can also function as a form of resource leveraging.

5. Conclusions and Limitations

This study examined how SCF affects SSCM in the Chinese baijiu enterprises. To enhance the clarity and readability of the findings, the following table summarizes the key themes identified from the interview analysis, together with brief descriptions and participant quotations to illustrate these insights.

Theme	Description	Illustrative Quotes
Knowledge Sharing	Using group credit to secure a stable supply of low-cost funds	"We use our credit resources to support industrial-chain firms and help reduce their costs without charging fees." [A]
Resource Bundling	Improving partners' financing capabilities	"We provide distributor financing guarantees, strengthening cooperation and trust." [A]
		"Based on real transaction data, we developed financing products for upstream suppliers." [A]
		"We help farmers apply for national subsidies related to high-standard farmland." [B]
		"We cooperate with villages and pay cash for local sorghum, improving financial flow." [B]
	Re-conceptualizing the targets and modes of financial services	"Our platform helps upstream and downstream firms obtain low-cost financing." [A]
		"We use e-CNY, blockchain, and smart contracts to strengthen financial risk control." [A]
		"The finance company is the internal bank of the enterprise and pioneers banking innovation." [C]
Resource Leveraging	Supplier sustainability assessment and rewards	"We use incentives and penalties; top scorers get more orders next year." [A]

Note: A, B, and C indicate quotations from interviewees in Case A, Case B, and Case C, respectively.

The research addressed two questions: first, what SCF practices are adopted by baijiu enterprises; and second, how SCF affects SSCM. The findings show that all three case firms embed SCF in SSCM, but their practices differ. More broadly, SCF is not merely a financing tool, but a resource orchestration mechanism embedded in SSCM value realization. Based on ROT (Sirmon et al., 2007; Sirmon et al., 2011), this study finds that SCF first helps firms and their supply chain partners structure financial, credit, and financial relationship resources. It then strengthens capabilities such as supply chain reliability, collaboration efficiency, cost efficiency, financial flow visibility, partner development, and supply chain re-conceptualization. Finally, during value leveraging, SCF serves as a tool for resource allocation and partner incentives. By combining financial support with order allocation, relationship stability, and performance assessment, firms encourage supply chain partners to continue participating in SSCM practices and support the realization of sustainability performance.

The theoretical contribution of this study lies in extending the understanding of SCF from a single financing tool to a mechanism embedded in SSCM value realization. Drawing on ROT, this study shows that SCF affects SSCM by structuring financial, credit, and financial relationship resources, developing foundational and dynamic supply chain capabilities, and deploying these capabilities to upstream and downstream partners through resource allocation and incentives. In doing so, this study enriches research on the relationship between SCF and SSCM

and provides contextualized evidence for SSCM research in emerging economies and the alcoholic beverage industry.

In practice, the findings suggest that baijiu enterprises should promote the use of SCF to better support supply chain capability development and sustainable value creation.

This study has several limitations. First, it is based on three leading Chinese baijiu enterprises, so the findings should be generalized to other industries with caution. Second, the qualitative case study approach is suitable for explaining mechanisms, but it cannot test the strength of the effects of different SCF practices on SSCM performance. Future research could use surveys, panel data, or longitudinal case studies to further validate the proposed mechanism.

Data Availability Statement: The interview script can be made available by the paper's authors upon request.

Ethics Declaration: This study did not require ethical clearance, as it ensured the anonymity of all participants and obtained their informed consent prior to conducting the interviews.

Declaration of AI Tools: In this article, the authors used an AI tool to assist with language refinement and grammar checks. The authors reviewed and verified all AI-generated content to ensure its accuracy and integrity and take full responsibility for the final manuscript.

References

Ahi, P., & Searcy, C. (2013). A comparative literature analysis of definitions for green and sustainable supply chain management. *Journal of cleaner production*, *52*, 329-341.

Akbar, S., & Ahsan, K. (2021). Investigation of the challenges of implementing social sustainability initiatives: A case study of the apparel industry. *Social Responsibility Journal*, *17*(3), 343-366.

Asante, R., Agyemang, M., Faibil, D., & Osei-Asibey, D. (2022). Roles and actions of managers in circular supply chain implementation: A resource orchestration perspective. *Sustainable Production and Consumption*, *30*, 64-76.

Beske, P. (2012). Dynamic capabilities and sustainable supply chain management. *International journal of physical distribution & logistics management*, *42*(4), 372-387.

Beske, P., Land, A., & Seuring, S. (2014). Sustainable supply chain management practices and dynamic capabilities in the food industry: A critical analysis of the literature. *International Journal of Production Economics*, *152*, 131-143.

Bowen, F. E., Cousins, P. D., Lamming, R. C., & Farukt, A. C. (2001). The role of supply management capabilities in green supply. *Production and operations management*, *10*(2), 174-189.

Caniato, F., Gelsomino, L. M., Perego, A., & Ronchi, S. (2016). Does finance solve the supply chain financing problem? *Supply Chain Management: An International Journal*, *21*(5), 534-549.

Caniato, F., Henke, M., & Zsidisin, G. A. (2019). Supply chain finance: Historical foundations, current research, future developments. *Journal of Purchasing and Supply Management*, *25*(2), 99-104.

Carter, C. R., & Rogers, D. S. (2008). A framework of sustainable supply chain management: Moving toward new theory. *International journal of physical distribution & logistics management*, *38*(5), 360-387.

Chen, L., Moretto, A., Jia, F., Caniato, F., & Xiong, Y. (2021). The role of digital transformation to empower supply chain finance: Current research status and future research directions (guest editorial). *International Journal of Operations & Production Management*, *41*(4), 277-288.

Chen, L., Zhao, X., Tang, O., Price, L., Zhang, S., & Zhu, W. (2017). Supply chain collaboration for sustainability: A literature review and future research agenda. *International Journal of Production Economics*, *194*, 73-87.

Defee, C. C., & Fugate, B. S. (2010). Changing perspective of capabilities in the dynamic supply chain era. *The International Journal of Logistics Management*, *21*(2), 180-206.

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, *14*(4), 532-550.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, *50*(1), 25-32.

Gibbert, M., Ruigrok, W., & Wicki, B. (2008). What passes as a rigorous case study? *Strategic Management Journal*, *29*(13), 1465-1474.

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research: Notes on the gioia methodology. *Organizational Research Methods*, *16*(1), 15-31.

Gong, Y., Jia, F., Brown, S., & Koh, L. (2018). Supply chain learning of sustainability in multi-tier supply chains: A resource orchestration perspective. *International Journal of Operations & Production Management*, *38*(4), 1061-1090.

Hitt, M. A., Xu, K., & Carnes, C. M. (2016). Resource based theory in operations management research. *Journal of Operations Management*, *41*, 77-94.

Hofmann, E. (2009). Inventory financing in supply chains. *International journal of physical distribution & logistics management*, *39*(9), 716-740.

Hong, J., Zhang, Y., & Ding, M. (2018). Sustainable supply chain management practices, supply chain dynamic capabilities, and enterprise performance. *Journal of cleaner production*, *172*, 3508-3519.

Ivanov, D. (2021). Digital supply chain management and technology to enhance resilience by building and using end-to-end visibility during the covid-19 pandemic. *IEEE Transactions on Engineering Management*, *71*, 10485-10495.
Jia, F., Zhang, T., & Chen, L. (2020). Sustainable supply chain finance:Towards a research agenda. *Journal of cleaner production*, *243*, 118680.
Miles, M. B. (2014). *Qualitative data analysis: A methods sourcebook*. Sage publications.
Patton, M. Q. (2014). *Qualitative research & evaluation methods: Integrating theory and practice*. Sage publications.
Qu, S. Q., & Dumay, J. (2011). The qualitative research interview. *Qualitative research in accounting management Decision*, *8*(3), 238-264.
Sánchez-Flores, R. B., Cruz-Sotelo, S. E., Ojeda-Benítez, S., & Ramírez-Barreto, M. E. (2020). Sustainable supply chain management—a literature review on emerging economies. *Sustainability*, *12*(17), 6972.
Scholten, K., & Schilder, S. (2015). The role of collaboration in supply chain resilience. *Supply Chain Management: An International Journal*, *20*(4), 471-484.
Seuring, S., & Müller, M. (2008). From a literature review to a conceptual framework for sustainable supply chain management. *Journal of cleaner production*, *16*(15), 1699-1710.
Silvestre, B. S. (2015). A hard nut to crack! Implementing supply chain sustainability in an emerging economy. *Journal of cleaner production*, *96*, 171-181.
Sirmon, D. G., Hitt, M. A., & Ireland, R. D. (2007). Managing firm resources in dynamic environments to create value: Looking inside the black box. *Academy of Management Review*, *32*(1), 273-292.
Sirmon, D. G., Sirmon, D. G., Hitt, M. A., Hitt, M. A., Ireland, R. D., Ireland, R. D., Gilbert, B. A., & Gilbert, B. A. (2011). Resource orchestration to create competitive advantage: Breadth, depth, and life cycle effects. *Journal of management*, *37*(5), 1390-1412.
Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, *18*(7), 509-533.
Tseng, M.-L., Wu, K.-J., Hu, J., & Wang, C.-H. (2018). Decision-making model for sustainable supply chain finance under uncertainties. *International Journal of Production Economics*, *205*, 30-36.
Voss, C., Tsikriktsis, N., & Frohlich, M. (2002). Case research in operations management. *International Journal of Operations & Production Management*, *22*(2), 195-219.
Wong, C. Y., Wong, C. W. Y., & Boon-itt, S. (2015). Integrating environmental management into supply chains. *International journal of physical distribution & logistics management*, *45*(1/2), 43-68.
Yin, R. K. (2009). *Case study research: Design and methods* (Vol. 5). sage.

Work in Progress Papers

Econometric Validation of Sectoral Environmental Innovation Drivers

Michael Mansberger and Rodney Leitner
European Polytechnical University (EPU), Pernik, Bulgaria

michael.mansberger@gmx.at
rodney.leitner@epubg.eu

Abstract: While traditional sustainability analyses examine firms' general environmental performance (E-Score), this metric mainly reflects the status quo of current operational emissions and resource efficiency. To evaluate long-term competitiveness amid the ecological transition, a deliberate shift toward forward-looking metrics is essential. Consequently, this empirical research focuses on the environmental innovation score, which captures a firm's future-oriented capacity to generate new market opportunities through eco-design and green technologies. The central research question investigates how corporate governance quality, social performance, and financial architecture shape environmental innovation across five distinct economic sectors (financial, consumer, energy, healthcare, and industrial). This paper employs an exploratory quantitative approach with multiple linear regression (OLS) models on disaggregated panel data of EURO STOXX 600 firms (2008–2022). This first empirical assessment shows significant sectoral heterogeneity. The statistical analysis suggests that corporate governance and social performance are not universal catalysts for green technologies. These factors are negatively associated, suggesting a potential resource trade-off: social and governance scores are significantly negatively associated with environmental innovation in the consumer and financial sectors. Investments in social programs or strict governance compliance may restrict the resources available for disruptive green technologies. Return on Assets (ROA) presents a decoupling between environmental performance and innovation. Previous work indicates that ROA drives the general E-Score in the consumer sector; this study finds it has no significant impact on environmental innovation in that same sector. Instead, ROA acts as a significant positive driver of environmental innovation in the financial sector and demonstrates a significant negative effect in the healthcare sector.

Keywords*:* Corporate governance, Environmental innovation, ESG integration, Financial structure, Sectoral analysis, Stakeholder theory

1. Introduction

While valuable for assessing present-day compliance, these backward-looking metrics are methodologically ill-equipped to capture the dynamic, forward-looking, and highly risky capital investments required to successfully navigate the macroeconomic transition toward a low-carbon, circular economy. Environmental innovation is fundamentally different from these static compliance measures. This proactive, strategic capacity enables a firm to develop disruptive green technologies, design environmentally friendly products, and re-engineer supply chains that actively reduce environmental costs for consumers and create new market paradigms (Horbach, 2008).

Existing ESG approaches generally posit a synergistic relationship across all dimensions of sustainability, suggesting that high social performance and strong corporate governance are natural and frictionless pathways to environmental innovation (Freeman et al., 2004). However, absolute resource scarcity dictates the financial reality of corporations. The strategic decision to allocate significant financial assets toward expansive social programs or exhaustive governance audits inevitably draws from the exact same pools of liquidity required to fund high-risk environmental R&D. The probability of such resource conflict suggests that sustainability must be evaluated in terms of competitive trade-offs, rather than presumed to be universally complementary.

2. Theoretical Framework and Econometric Specifications

Traditional stakeholder theory suggests that the satisfaction of various competing interest groups leads to a virtuous cycle of increasing trust and better financial performance (Freeman et al., 2004). In this context, firms with good social performance and transparent corporate governance should theoretically be more environmentally innovative.

Conversely, the trade-off theory explicitly accounts for the finite nature of corporate capital. It suggests that an excessive deployment of capital toward broad social or governance mandates leads to a severe dilution of available financial resources. This resource conflict greatly limits the budgets for capital-intensive environmental R&D. The paper evaluates the stakeholder theory and the trade-off theory and tests the relevance of slack resource theory in different sectors. The paper uses a multivariate linear regression model to analyze firms from 2008 to 2022.

$$EIS_{i,t} = \beta_0 + \beta_1 ENV_{i,t} + \beta_2 SOC_{i,t} + \beta_3 GOV_{i,t} + \sum_{k=1}^{K} \gamma_k Z_{k,i,t} + \epsilon_{i,t}$$

In this specification, $EIS_{i,t}$ represents the dependent variable, the Environmental Innovation Score, for firm *i* at time t. β_0 represents the intercept. $ENV_{i,t}$, $SOC_{i,t}$, $GOV_{i,t}$ represent the aggregate ESG pillar scores, respectively. The term $Z_{k,i,t}$ denotes a vector of *K* firm-specific financial control variables (such as ROA, EBITDA, or market capitalization) applied to control for omitted variable bias, with acting γk as their corresponding slope coefficients. Finally, $\epsilon_{i,t}$ captures the idiosyncratic error term.

3. Research Design

The disaggregation of the dataset into five distinct economic sectors is theoretically motivated by the transition dynamics of the circular economy. Because industries interact with physical and regulatory environmental risks differently, treating ESG as a monolithic concept masks profound structural reality. Furthermore, the inclusion of heterogeneous financial control variables across the sectoral models is theoretically grounded in the Sustainability Accounting Standards Board (SASB) Materiality Map. The SASB framework establishes that sustainability-related risks, opportunities, and the financial metrics that constrain them manifest differently across industries. Standardizing the control variables across all sectors would introduce bias by forcing inappropriate financial structures onto incompatible business models.

Empirical Results and Sectoral Heterogeneity

The consolidated regression results (Table 1) validate the structural heterogeneity of environmental innovation drivers across sectors.

Table 1: Results

Explanatory Variables & Model Diagnostics	Consumer (*β*)	Energy (*β*)	Financial (*β*)	Healthcare (*β*)	Industrial (*β*)
Independent ESG Pillars	-	-	-	-	-
Social Score	-0.244**	-0.330*	-0.245**	0.016	-0.425***
Governance Score	-0.155**	-0.236*	-0.292***	-0.493***	-
Environmental Controls	-	-	-	-	-
Resource Use Score	-0.443***	-0.955***	-0.407***	-	-
Emissions Score	-1.009***	-1.177***	-0.275***	-	-0.721***
SASB Financial Controls	-	-	-	-	-
ROA	-0.050	0.796	1.789***	-2.023**	-
ROE	-	0.247	-0.420**	-	-
Net Margin	-	-3.656***	-0.538	-	-4.753**
Market Capitalization	-	1.169e-5	-3.002e-6*	-	2.058e-5**
EBITDA	-4.153e-5**	3.985e-5	1.004e-5	-	-
Model Diagnostics	-	-	-	-	-
Adjusted R^2	.931	.736	.841	.687	.834
Observations (N)	314	305	354	306	340

Note: Unstandardized coefficients are presented. Significance levels: *p < .10, **p < .05, ***p < .01. Missing variables (-) are structurally excluded based on sectoral SASB materiality mappings.

Shifting the focus to the non-tautological variables reveals critical strategic insights. The models strongly support the resource trade-off theory regarding non-environmental pillars. Across the consumer, financial, and industrial sectors, high social scores act as a significant statistical barrier to green innovation. This suggests that firms allocating substantial capital to broad social compliance exhaust the specific liquidity required for forward-looking eco-design. Likewise, the corporate governance compliance is known as a significant negative constraint, it is the primary barrier in the healthcare sector.

The Slack Resources Theory finds significant validation only in the financial sector, where ROA acts as a strong positive determinant, indicating that pristine asset efficiency supplies the vital risk buffer for green markets. Conversely, the healthcare sector contradicts this theory: an elevated ROA exerts a significant negative impact on innovation. This implies that massive ROA, potentially generated by lucrative legacy patents, leads to institutional complacency rather than pioneering sustainable drug alternatives. Finally, margin analysis in the energy sector reveals that artificially boosting bottom-line net margins to shareholders involves slashing the capital-intensive R&D budgets needed for green technological breakthroughs.

4. Conclusion

This study of the EURO STOXX 600 shows that corporate environmental innovation is driven by different organizational and financial factors than ESG compliance. While effective ESG strategies may be universal, they are unlikely to be suitable for all market environments, and the conflation of ESG as a single metric results in confusion. The demands of corporate governance and social performance can obstruct disruptive green innovation and support the trade-off theory of capital allocation. Decision makers seeking to simultaneously optimize all dimensions of ESG face capital constraints and risk mediocrity. It is important to recognize these inherent trade-offs so that management teams can strive to balance formal operational compliance with the disruptive ecological progress needed to sustain macroeconomic competitiveness over the long term. Future research, using sophisticated dynamic panel methodologies, should build on these exploratory findings to further disentangle these important governance trade-offs.

Acknowledgements

The authors thank the anonymous reviewers of the 22nd ECMLG 2026 for their constructive feedback.

Ethics Declaration: This research did not require ethical clearance because it uses publicly available financial and ESG data from the EURO STOXX 600 index. No human subjects or sensitive information was used.

AI Declaration: Authors independently conducted research, data analysis, and interpretation. AI tools were used only for minor language polishing. No sections were fully generated by AI.

References

Freeman, R.E., Wicks, A.C. and Parmar, B. (2004) 'Stakeholder Theory and "The Corporate Objective Revisited"', *Organization Science*, 15(3), pp. 364-369. https://doi.org/10.1287/orsc.1040.0067

Horbach, J. (2008) 'Determinants of environmental innovation - New evidence from German panel data sources', *Research Policy*, 37(1), pp. 163-173. https://doi.org/10.1016/j.respol.2007.08.006

Integrated Ethics Management Framework (IEMF) for Local Government in South Africa

Simphiwe Mngonyana and Shaun W Pekeur
Management College of Southern Africa, South Africa

simphiwemnm@dsac.gov.za
drshaunp2@gmail.com

Abstract: This article presents a comprehensive IEMF designed specifically for local government in South Africa, with particular application to metropolitan municipalities. Drawing on institutional theory, virtue ethics, and stewardship theory, the framework addresses the persistent challenges of ethical governance, corruption, and public trust deficits that have plagued South African local government. Through a phased implementation strategy over 36 months, the framework integrates with existing municipal systems including performance management, risk management, financial controls, service delivery, and human resources. The framework offers a practical, theoretically-grounded approach to rebuilding public trust and institutional integrity in South African local government.

Keywords: Ethics management, Institutional theory, Local government, Municipal governance, Public integrity stewardship theory, Virtue ethics

1. Introduction

Local government in South Africa plays a key role in running the country and providing services to people, but city and town councils still struggle with issues like corruption, when leaders get involved in politics too much, problems with how they buy goods and services, situations where personal interests affect decisions, poor handling of money, and a drop in how much the public trusts them. These issues have led to problems in delivering services and have caused resources meant for community growth to be used elsewhere. The article proposes an Integrated Ethics Management Framework (IEMF) for South African local government. This framework is based on institutional theory, virtue ethics, and stewardship theory. It argues that ethical governance should focus on changing structures, cultures, and individual behaviors, not just following rules. The framework includes steps to prevent ethical issues by creating a strong moral foundation and culture, ways to find out if anyone is breaking ethical rules by watching and reporting, and actions to make sure rules are followed properly and that the organization learns from any mistakes.

2. Literature Review

2.1 Theoretical Foundations

The proposed IEMF is founded on three complementary theoretical perspectives (Institutional theory, Virtue Ethics theory and Stewardship theory) that collectively address the complexity of ethical governance in local government contexts. Institutional theory provides the foundation for understanding how regulatory, normative and cultural-cognitive pillars influence organisational behaviour (Scott, 2014). It also explains how mechanisms such as learning, competition and coercion contribute to the spread of innovations, including management frameworks, across municipalities (Berry & Berry, 2018). This perspective is particularly relevant in South Africa, where municipalities often learn from one another and adopt governance practices, while institutional theory also contributes to understanding policy diffusion and variations in formal government structures. Virtue Ethics theory shifts focus from compliance-driven approaches to character development and moral reasoning capabilities among public managers (Audi, 2012). Stewardship theory posits that public officials should act as stewards of public resources, prioritizing the long-term interests of citizens over short-term personal or political gains (Hsu and Zhang, 2025). The framework consequently recognises that ethical governance is shaped not only by formal regulations but also by normative expectations and cultural-cognitive influences, providing a broader theoretical foundation for strengthening ethical management practices across municipalities.

2.2 Gaps in Current Approaches

The literature on ethics management in local government, particularly in the South African context, reveals several gaps. First, there is a tendency to focus on compliance mechanisms (rules, codes, procedures) without adequate attention to the cultural and normative dimensions of ethical conduct. Second, many interventions are reactive rather than proactive, responding to scandals rather than preventing them. Third, ethics management is often treated as a standalone function rather than integrated into core municipal systems and processes. Fourth, there is insufficient attention to the development of ethical capabilities among public officials,

with training often limited to information provision rather than character development and moral reasoning. The proposed IEMF addresses these gaps by providing a comprehensive, theoretically grounded approach that integrates preventive, detective, and responsive components and is embedded in existing municipal systems.

2.3 Ethical Considerations

The research was conducted with approval from relevant institutional ethics committees. Informed consent was obtained from all participants. Confidentiality was maintained, with data anonymized and participants given the option to review findings related to their contributions.

3. Discussion

The framework recognizes that effective ethics management requires a comprehensive approach addressing multiple dimensions of organizational and individual conduct. The framework comprises three interconnected components: (*see Appendix A*)

Preventive Measures establish proactive ethical infrastructure that minimizes opportunities for misconduct. This includes enhanced ethical policies, stratified training programs, and ethics-based recruitment and promotion. The preventive component is grounded in institutional theory's recognition that organizational structures and processes shape behavior, and virtue ethics' emphasis on developing ethical character and capabilities. Detective Measures ensure timely identification of ethical breaches through multiple overlapping systems. This includes integrated risk monitoring, structured integrity audits, and multi-channel reporting mechanisms. The detective component recognizes that even with strong preventive measures, ongoing monitoring is necessary to identify emerging issues and ensure accountability. Responsive Measures ensure consistent and fair handling of ethical breaches while supporting ethical behavior. This includes graduated sanction systems, ethics advisory and support services, and restorative justice processes. The responsive component reflects stewardship theory's emphasis on accountability and learning, and virtue ethics' concern with rehabilitation and development.

3.1 Implementation Strategy

The implementation of the framework follows a phased approach over 36 months. Phase 1 (Months 1-12) focuses on foundation building, including leadership endorsement, policy refinement, establishment of implementation structures, and initial awareness campaigns. Phase 2 (Months 13-24) involves system integration, with targeted implementation in high-priority departments, specialized training, active monitoring, and pilot reporting mechanisms. Phase 3 (Months 25-36) consolidates and mainstreams the framework organization-wide, with formal evaluation and integration into core municipal processes. Critical to successful implementation is the integration of the framework with existing municipal systems. This includes embedding ethics in performance management, risk management, financial controls, service delivery, and human resources processes. This integration ensures that ethics becomes a defining thread in all aspects of municipal governance rather than a standalone compliance function.

3.2 Theoretical Contributions

The proposed framework makes several theoretical contributions. First, it demonstrates how institutional theory, virtue ethics, and stewardship theory can be integrated to provide a comprehensive foundation for ethics management in local government. Second, it extends these theories to the specific context of local government in a developing country, addressing challenges that may not be adequately captured in theories developed primarily in Western contexts. Third, it provides a bridge between theoretical insights and practical implementation through the specification of concrete measures and processes.

3.3 Practical Implications

The framework has significant practical implications for local government in South Africa. First, it provides a systematic approach that can guide municipalities in developing comprehensive ethics management systems. Second, it offers specific measures and processes that can be adapted to different municipal contexts. Third, it emphasizes the importance of integration with existing systems, reducing the risk of ethics management being treated as a standalone, peripheral function. The framework offers a way to move beyond reactive, compliance-oriented approaches to ethics management toward a proactive, integrated approach that addresses the structural, cultural, and individual dimensions of ethical conduct.

4. Limitations and Future Research

While the framework is grounded in theoretical literature and empirical findings, it is important to acknowledge its limitations. The framework has been developed primarily for large municipalities, and its applicability to smaller municipalities with different institutional contexts requires further investigation.

5. Conclusion

The proposed IEMF offers a comprehensive, theoretically grounded approach to addressing the persistent challenges of ethical governance in South African local government. By integrating preventive, detective, and responsive measures within a systematic implementation strategy, the framework provides municipalities with a practical path toward rebuilding public trust and institutional integrity. The successful implementation of the framework, particularly its integration with existing municipal systems, would represent a significant step toward realizing the constitutional vision of local government as a sphere of democratic and accountable governance.

Ethical Statement: The data in this article was taken from a work in progress of a PhD study that collected the data anonymously and provided participants with detailed privacy policy and rights.

AI Statement: The authors confirm that no generative AI tools were used in the conception, writing, analysis or interpretation of this study.

Competing interests: The authors declare that there is no competing interest associated with this publication.

References

Audi, R. (2012). Virtue Ethics and a Psychology of Character. In Moral Psychology and Human Agency: Philosophical Essays on the Science of Ethics (pp. 61-85). London: Oxford University Press.

Berry, F.S. and Berry, W.D. (2018). Innovation and Diffusion Models in Policy Research. In Theories of the Policy Process (4th ed., pp. 253-297). Milton Park: Routledge.

Carr, J.B. and Hawkins, C.V. (2013). The Costs of Cooperation: What the Research Tells Us About Managing the Risks of Service Collaborations in the United States. State and Local Government Review, 45(4): 224-239.

Cooper, T.L. (2012). The Responsible Administrator: An Approach to Ethics for the Administrative Role (6th ed.). San Francisco: Jossey-Bass.

De Graaf, G. and Paanakker, H. (2015). Good Governance: Performance Values and Virtue. The American Review of Public Administration, 45(6): 635-652.

Dickinson, H. (2016). From New Public Management to Public Value: Paradigmatic Change and Managerial Implications. Australian Journal of Public Administration, 75(3): 353-366.

Hsu, H and Zhang, Y. (2025). Public organizational stewardship: Conceptualization and application. Perspectives on Public Management and Governance, XX: 1–11.

Macaulay, M. and Lawton, A. (2016). Virtue Ethics and the Practice of Public Service. In The Routledge Handbook of Ethics and Public Policy (pp. 210-223). New York: Routledge.

Scott, W.R. (2014). Institutions and Organizations: Ideas, Interests, and Identities (4th ed.). Los Angeles: Sage Publications.

Simpkins, L., Myriam, B and Louise, L. (2021). Can we better define stewardship for public sector executives? A research agenda. Canadian Public Administration 64: 143–59

Svara, J.H. (2015). The Guardians of the Community: The Ethical Foundations of the Council-Manager Relationship. In The Future of Local Government Administration: The Winter Commission Report Revisited. Reading: ICMA Press.

Tavares, A.F. and da Cruz, N.F. (2020). Explaining the Transparency of Local Government Websites through a Stewardship Theory Perspective. Local Government Studies, 46(5): 769-790.

Vandenhove, W. and Van Wart, M. (2020). Stewardship in Public Administration: A Comparative Analysis of Belgium, the Netherlands, and the United States. Public Integrity, 22(3): 239-255.

Walker, R.M., Brewer, G.A., Boyne, G.A. and Avellaneda, C.N. (2011). Market Orientation and Public Service Performance: New Public Management Gone Mad? Public Administration Review, 71(5): 707-717.

Appendix A: IEMF Model

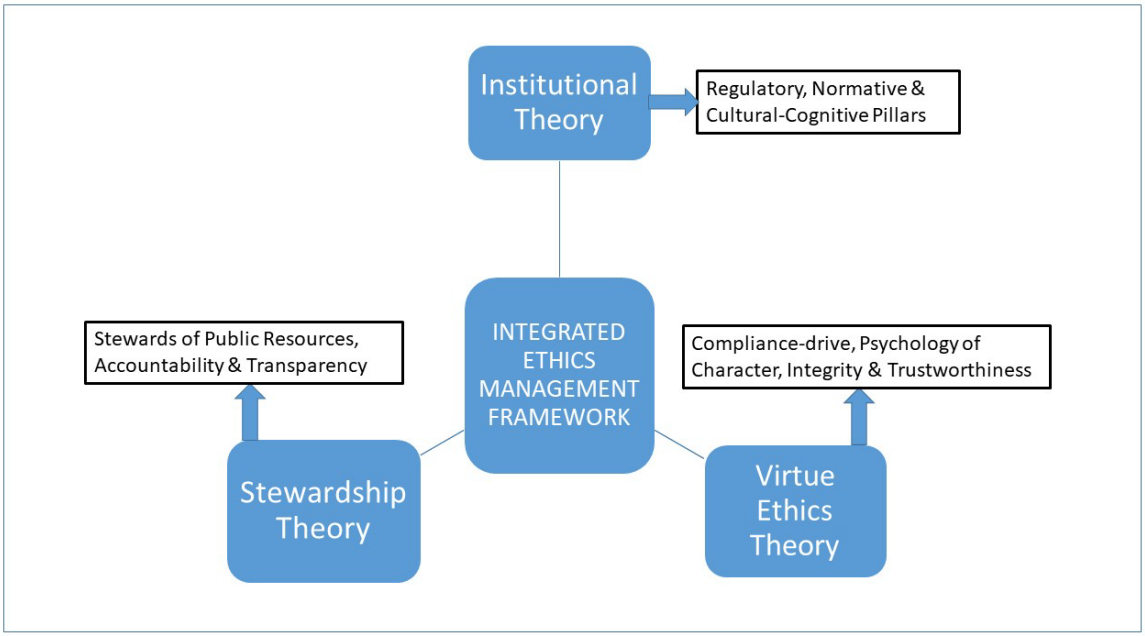


Figure 1: Simphiwe's IEMF model (2026)

Leadership as the Design of Regulation: Toward a Regulation Theory of Leadership

Armin Trost
Faculty of Business, Design and Media, Furtwangen University, Germany

armin.trost@hs-furtwangen.de

Abstract: Leadership research has produced extensive knowledge about leader traits, behaviors, styles, and relationships, but concerns remain about conceptual overlap and insufficient attention to context. This conceptual work-in-progress paper proposes a complementary functional perspective: leadership as the design of regulation. Organizations face irritations that disturb established action. When rules and routines no longer provide a sufficiently pre-decided response, conscious regulation is required. It binds attention; the theory defines attention bound by conscious regulation as regulation costs. Good leadership secures organizational ability to act while keeping regulation costs as low as possible relative to available alternatives. Four leadership roles - Boss, Coach, Partner, and Enabler - represent different combinations of locus and mode of regulation. Illustrative costly forms are overregulation, underregulation, overinvolvement, and overinstitutionalization. Contextual fit depends on regulation requirements and regulation capacities within a relatively stable leadership context. The contribution is a functional perspective that shifts attention from leadership styles to how regulation is designed and how much attention it binds. The paper closes with implications for empirical research on regulation costs and contextual fit.

Keywords: Leadership as design of regulation, Regulation costs, Bound attention, Locus of regulation, Regulation capacity, Contextual fit

1. Introduction

Leadership research has developed a rich vocabulary for describing leaders, their behavior and relationships with followers. Recent contributions have renewed concerns about two limitations: conceptual conflation of leadership-style constructs and insufficient attention to context (Johns, 2024; Fischer, Dietz and Antonakis, 2026). The present paper takes these concerns as a point of departure but asks a different question. Rather than proposing another style, it examines leadership as a mechanism for organizing regulation work.

Organizations must remain capable of acting despite recurrent irritations. Many such cases are handled through established rules and routines. Where these no longer suffice, uncertainty has to be processed consciously. Leadership then becomes relevant not only because it shapes relationships or behavior, but because it influences where this processing takes place, how it takes place, and how much attention it binds.

The paper is deliberately positioned as a conceptual work in progress. It develops only the core architecture of a regulation theory of leadership and leaves several mechanisms for later elaboration and empirical testing.

2. From Decision Premises to Regulation Costs

The framework draws selectively on Luhmann's organizational theory, particularly the concepts of decision premises and uncertainty absorption (Luhmann, 2018). It does not attempt to reproduce his full systems-theoretical ontology. Here, organizations are treated pragmatically as purpose-oriented systems of expectations whose rules, roles and routines stabilize expectations and enable sufficiently stable and reproducible organizational ability to act.

Internally or externally induced events or expected developments become irritations when they are organizationally marked as relevant because they indicate an actual or threatened deviation of organizational states relevant to the organization's functioning. Such marked irritations create a need for regulation. Rules and routines make the handling of many recurring irritations comparatively inexpensive because they pre-decide, to a meaningful degree, what is to be done. When no suitable decision premise is available, conscious regulation becomes necessary. Conscious regulation refers to the thinking and communication required to clarify how an irritation should be handled so that organizational ability to act can be restored. It may involve information processing, deliberation, prioritization, negotiation, coordination or decision making.

Regulation binds attention. Attention is a central organizational resource because organizational behavior depends on how it is allocated (Ocasio, 1997). In practice, bound attention becomes visible in thinking time, conversations, emails, meetings, waiting times and coordination loops. The proposed theory refers to attention bound by conscious regulation as regulation costs. The concept is broader than monetary cost, although labor time and coordination effort can make such costs economically observable.

Crucially, regulation costs are relational rather than absolute. A two-hour meeting involving ten people may consume twenty person-hours and still be the least costly available solution. Regulation is costly when an alternative mode or locus could have secured at least equally stable organizational ability to act while binding less attention. This comparative logic is consistent with assessing organizational alternatives relative to one another (Williamson, 1991). The issue is therefore not effort as such, but avoidable effort. More demanding initial regulation may, for example, prevent later corrections, renegotiations or repair work.

This leads to the central theorem of the proposed theory: good leadership secures organizational ability to act while keeping regulation costs as low as possible.

3. Four Regulatory Roles of Leadership

Leadership becomes particularly relevant when rules and routines are insufficient for processing an irritation. Alongside the substantive question of what should be done, a second question arises: where and how should the required regulation take place? The locus of regulation denotes the instance at which regulation is carried out. Different loci possess different regulation capacities, that is, different degrees of ability and willingness to restore organizational ability to act.

Combining locus and mode of regulation yields four basic leadership roles. They are not conceived as leadership styles but as alternative arrangements of regulation work.

Table 1: Leadership roles as forms of organizational regulation

Leadership role	Locus of regulation	Mode of regulation	Illustrative costly form
Boss	Leader	Direct regulation	Overregulation (micromanagement)
Coach	Followers	Self-regulation	Underregulation
Partner	Team	Co-regulation	Overinvolvement
Enabler	Variable	Creating conditions for regulation	Overinstitutionalization (bureaucracy)

In the Boss role, the leader regulates directly. This can be fast and inexpensive when the leader possesses the relevant capacity. It becomes costly when the leader absorbs issues that could be handled at least as well elsewhere. The resulting overregulation creates bottlenecks, delays and micromanagement.

In the Coach role, the leader stimulates follower self-regulation. This can reduce escalation and place regulation work close to relevant expertise. It becomes costly when followers lack sufficient regulation capacity. Underregulation then produces overload, repeated requests for guidance or corrective loops.

In the Partner role, the leader moderates team-based co-regulation. Joint deliberation can integrate distributed knowledge and reduce later renegotiation. It becomes costly when more actors are included than necessary or consensus is pursued beyond what stable action requires. Overinvolvement turns coordination itself into avoidable regulation.

In the Enabler role, the leader creates structural, capacity-building or situational conditions that make regulation less costly. These may include rules and routines, the development of regulation capacities, or the provision of resources and support in a specific situation. Formal structures can enable rather than merely constrain effective action (Adler and Borys, 1996). Structural regulation becomes costly when institutionalization exceeds its regulatory benefit. Overinstitutionalization arises when procedures or governance arrangements consume more attention than the recurring irritations they address.

These four illustrative costly forms are not deficiencies inherent in particular roles. They express one common failure mechanism: regulation work is organized in a way that binds avoidable attention.

4. Idea of Leadership and Contextual Fit

A purely situational selection of leadership roles would require leaders to reconsider their role whenever an irritation occurs. This meta-decision binds attention and creates uncertainty about what followers can expect. The theory therefore assumes that leaders stabilize a primary leadership role as a default. Such a durable decision premise concerning one's own leadership behavior is referred to as an idea of leadership. It creates

leadership clarity and makes behavior more predictable. This argument also connects to a broader context-driven view of leadership (Trost, 2025).

Which idea of leadership is comparatively inexpensive depends on a relatively stable leadership context. Leadership contexts differ in their regulation requirements - the type and extent of regulation typically required - and in the regulation capacities available at different loci. This is compatible with the classic information-processing view that uncertainty creates processing requirements to which organizational capacities must respond (Galbraith, 1974), while shifting the focus to regulation in leadership.

Contextual fit exists when the primary mode of regulation corresponds to typical regulation requirements, the selected locus possesses sufficient regulation capacity, and the combination secures organizational ability to act at lower regulation costs than available alternatives. A participative process may be costly when it creates unnecessary coordination, yet inexpensive when it prevents later renegotiation. Direct decision making may remove uncertainty rapidly, yet create a central bottleneck elsewhere.

Context characteristics therefore provide indications rather than an algorithm for selecting a leadership role. Contextual fit remains relational and comparative.

5. Discussion and Research Agenda

The proposed perspective complements existing leadership research with a functional account of regulation processes. Its primary criterion is not whether a particular leadership behavior is generally desirable, but whether regulation work is organized so that organizational ability to act is secured without avoidably binding attention.

Three theoretical contributions follow. First, leadership is defined functionally through its contribution to organizational ability to act. Second, leadership roles are combinations of locus and mode of regulation rather than superior or inferior styles. Third, regulation costs provide a comparative criterion for costly leadership. Familiar phenomena can thus be examined within one framework: decision bottlenecks, repeated escalations, unnecessary consensus, recurring renegotiation, or formal procedures that consume more effort than the problems they address.

The present paper deliberately leaves several mechanisms open. A fuller theory would distinguish actual from perceived regulation capacity, examine shifts between loci, differentiate primary from secondary regulation costs, analyze situational departures from a stabilized idea of leadership, and consider the development of regulation capacities over time.

Regulation costs cannot be operationalized as the absolute amount of communication or meeting time, because high regulation requirements may make extensive coordination functional. Empirical work must test the comparative logic: whether plausible alternative loci or modes could sustain at least equally stable organizational ability to act while binding less attention.

The potential contribution is therefore not another typology of good leadership. It is a different analytical lens: leadership as the design of regulation to secure organizational ability to act while limiting the attention bound by conscious regulation.

Ethics Declaration: This is a conceptual paper and reports no research involving human participants, personal data, animals or other procedures requiring ethical approval. Ethical clearance was therefore not required.

AI Declaration: Generative AI (OpenAI ChatGPT) was used to support manuscript structuring, translation from German into English, terminology checking, linguistic refinement and the identification of potentially relevant literature. The theoretical concepts and core arguments originated with the author. AI-assisted material was critically reviewed and revised during manuscript preparation, and the author assumes full responsibility for the submitted text.

References

Adler, P.S. and Borys, B. (1996) 'Two Types of Bureaucracy: Enabling and Coercive', Administrative Science Quarterly, Vol 41, No. 1, pp 61-89. https://doi.org/10.2307/2393986

Fischer, T., Dietz, J. and Antonakis, J. (2026) 'Leadership styles revisited: From conceptual conflation to causal explanation and practical relevance', Journal of Business Research, Vol 208, 116061. https://doi.org/10.1016/j.jbusres.2026.116061

Galbraith, J.R. (1974) 'Organization Design: An Information Processing View', Interfaces, Vol 4, No. 3, pp 28-36. https://doi.org/10.1287/inte.4.3.28

Johns, G. (2024) 'The context deficit in leadership research', The Leadership Quarterly, Vol 35, No. 1, 101755. https://doi.org/10.1016/j.leaqua.2023.101755
Luhmann, N. (2018) Organization and Decision, Baecker, D. (ed.), Barrett, R. (trans.), Cambridge University Press, Cambridge. https://doi.org/10.1017/9781108560672
Ocasio, W. (1997) 'Towards an Attention-Based View of the Firm', Strategic Management Journal, Vol 18, Special Issue, pp 187-206. https://doi.org/10.1002/(SICI)1097-0266(199707)18:1+<187::AID-SMJ936>3.0.CO;2-K
Trost, A. (2025) The Reflective Leader: A Guide to Context-Driven Leadership and Building Trust, Springer, Berlin and Heidelberg. https://doi.org/10.1007/978-3-662-70860-6
Williamson, O.E. (1991) 'Comparative Economic Organization: The Analysis of Discrete Structural Alternatives', Administrative Science Quarterly, Vol 36, No. 2, pp 269-296. https://doi.org/10.2307/2393356

Late Submissions

A Critical Review of Digital Leadership in the Age of AI

Edmont Pasipamire
The IIE Rosebank College Cape Town, South Africa

edmontp936@gmail.com

Abstract: The rapid evolution of artificial intelligence (AI) and digital technologies has disrupted traditional leadership models, *and the question of how leaders can navigate AI-driven organizational change has become increasingly critical*. This critical review analyses scholarship on digital leadership between 2014 and 2024 to illuminate the strengths and limitations of extant theories, the gaps in existing frameworks that continue to inform transformational and adaptive leadership models, and the emerging practices that can enhance the effectiveness of leaders in complex technological environments, with a particular focus on how to navigate the challenges of AI integration in a way that maintains organizational effectiveness and ethical standards. Based on these gaps and emerging practices, this study proposes a research agenda for developing multi-dimensional leadership approaches that address rapid technological change while preserving organizational integrity and societal values.

Keywords: Digital leadership, Artificial intelligence, Organizational change, Ethics, Adaptability, Governance

1. Introduction and Background

While AI has challenged conventional leadership paradigms, AI can disrupt organizational operations beyond improvements in efficiency and challenge traditional leadership competencies by seeping into decision-making, employee roles, and organizational culture (Matsunaga, 2022; Weber et al., 2022). AI has led to the development of a new field of digital leadership, which has moved beyond the focus on the use of ICT in e-leadership to a more comprehensive strategic transformation that includes AI, big data, and digital ecosystems (Li et al., 2024). However, some studies indicate that AI adoption also presents ethical risks, transparency concerns, and job security anxiety among knowledge workers (Breidbach & Maglio, 2020; Tarsuslu et al., 2024). The implications are significant: ineffective digital leadership can create resistance, ethical violations, and organizational dysfunction, whereas effective leadership can support innovation and resilience (Zaidi et al., 2024). However, transformational and adaptive frameworks are still limited in integrating technical, social, and ethical dimensions (Engelbrecht et al., 2017; Hossain et al., 2025). The proposed review outlines a multi-dimensional approach that incorporates digital literacy, ethical reasoning, and adaptive capacity to help organizations navigate AI-driven transformation.

2. Research Objectives

This critical review aims to provide comprehensive analysis of digital leadership approaches in the context of AI-driven organizational transformation. The review addresses three specific research objectives that collectively examine the current state of digital leadership theory and practice while identifying directions for future development.

Objective 1: Evaluate the adequacy of existing leadership frameworks in addressing ethical challenges and employee resistance during AI-driven organizational transformations. This objective examines how current theoretical models, including transformational, adaptive, and ethical leadership frameworks, address the human and ethical dimensions of AI implementation (Engelbrecht et al., 2017; Matsunaga, 2022; Weber et al., 2022).

Objective 2: Identify and analyse emerging practices that enable leaders to integrate technical, social, and ethical considerations for effective digital governance. This objective focuses on innovative approaches that balance technological advancement with organizational integrity and employee well-being (Schiuma et al., 2021; Yang et al., 2025; Georgieva et al., 2022).

Objective 3: Assess theoretical and practical gaps in current digital leadership models and propose directions for enhancing organizational resilience during AI adoption. This objective evaluates the limitations of existing frameworks and identifies specific areas requiring further theoretical development and empirical validation (Cortellazzo et al., 2019; Sundowo et al., 2024; Yang et al., 2025).

3. Methodology

3.1 Research Design and Approach

This study adopts a critical review methodology, which is distinct from systematic reviews in that it prioritizes conceptual evaluation and theoretical integration rather than exhaustive coverage. The purpose is to interrogate

assumptions in existing leadership theories, identify conceptual gaps, and propose an integrated framework for digital leadership in the context of AI adoption.

3.2 Literature Search Strategy

A structured search was undertaken across four databases—Francis and Taylor, Scopus, Business Source Premier, and Google Scholar—focusing on the period 2014–2024, which aligns with the decade of significant AI-driven organizational change. Search terms included combinations of *digital leadership*, *artificial intelligence and leadership*, *adaptive leadership and technology*, *transformational leadership and AI*, and *ethical AI governance*. Boolean operators (AND/OR) and truncations were applied to ensure comprehensiveness. To ensure scholarly quality, only peer-reviewed journal articles and conference proceedings were included. Opinion pieces, non-peer-reviewed reports, and purely technical AI studies without leadership relevance were excluded.

3.3 Thematic Synthesis

Following Braun and Clarke (2006), literature was coded and grouped through:

- **Descriptive mapping** of frameworks and practices,
- **Analytical comparison** of their strengths and weaknesses, and
- **Integrative synthesis** into the conceptual framework presented in Section 4.

This approach ensured that the review moved beyond descriptive reporting toward a structured, theory-informed synthesis, enabling the identification of both theoretical limitations and practical innovations in digital leadership research.

4. Conceptual Foundations and Theoretical Frameworks

4.1 Theoretical Landscape: From Digital Leadership to AI-Driven Transformation

Digital leadership has become a concept developed from the influence of technology, but the theoretical basis is problematic (Yang et al., 2025). Digital leadership is defined by Yang et al. as the "ability of leaders to use digital intelligence technologies to enhance business development and organizational performance, including digital trend insight, digital organizational change, and digital talent development" (Yang et al., 2025: 20). Other conceptualizations focus on digital leadership as the application of digital technologies into organizational strategies and the motivation and direction of employees during transformation (Wasono and Furinto, 2018; Zeike et al., 2019; Sacavém et al., 2025). The transformation from e-leadership to digital leadership indicates the understanding that today's leadership is not simply the use of technology but also requires transformation capabilities that include AI, big data, and platform ecosystems (Li et al., 2024). This definitional variation reveals some deeper theoretical issues with applying traditional leadership frameworks to the specific characteristics of AI. While transformational, adaptive, and ethical leadership theories can serve as useful starting points, they all fall short in specific ways when applied to AI contexts, from how to approach human-AI interactions to issues like algorithmic bias (Weber et al., 2022). When decision-making authority is shared with or delegated to algorithmic systems, the focus on individual charisma and vision are not sufficient for this framework Adaptive leadership promotes resilience and flexibility in the face of uncertainty but assumes adaptation is always desirable, which is problematic in the presence of AI that introduces surveillance, bias, or concerns about employee displacement (Huang et al., 2023). There are no mechanisms within the framework to ask whether some AI implementations should be resisted instead of adapted to, especially when they conflict with organizational values or employee well-being. While ethical leadership centres on trust and fairness, it is still nascent in environments in which decisions are shared with algorithms (Breidbach & Maglio, 2020), and although traditional ethical leadership addresses interpersonal trust and moral exemplar behavior, it does not offer much in the way of guidance for algorithmic transparency, bias mitigation, or the ethical considerations of human-AI collaboration.

These frameworks offer useful foundations but remain fragmented, highlighting the need for integrated approaches capable of addressing the discontinuities between traditional leadership and AI-augmented environments. *Figure 1* builds on the work of Matsunaga (2022), Weber et al. (2022), and Engelbrecht et al. (2017), illustrating how transformational, adaptive, and ethical leadership frameworks are only partially applicable in AI contexts. The top of the figure presents the core assumptions of each framework—such as charisma and vision in transformational leadership or resilience in adaptive leadership—while the arrows indicate where these assumptions fail to address AI-specific challenges, including algorithmic bias, employee displacement, and shared decision-making with machines. This visualization supports *Objective 1* by showing

that, although traditional frameworks provide useful starting points, they are insufficient for managing the ethical and socio-technical disruptions introduced by AI. The gaps identified in the figure motivate the development of a more integrated, AI-aware leadership approach.

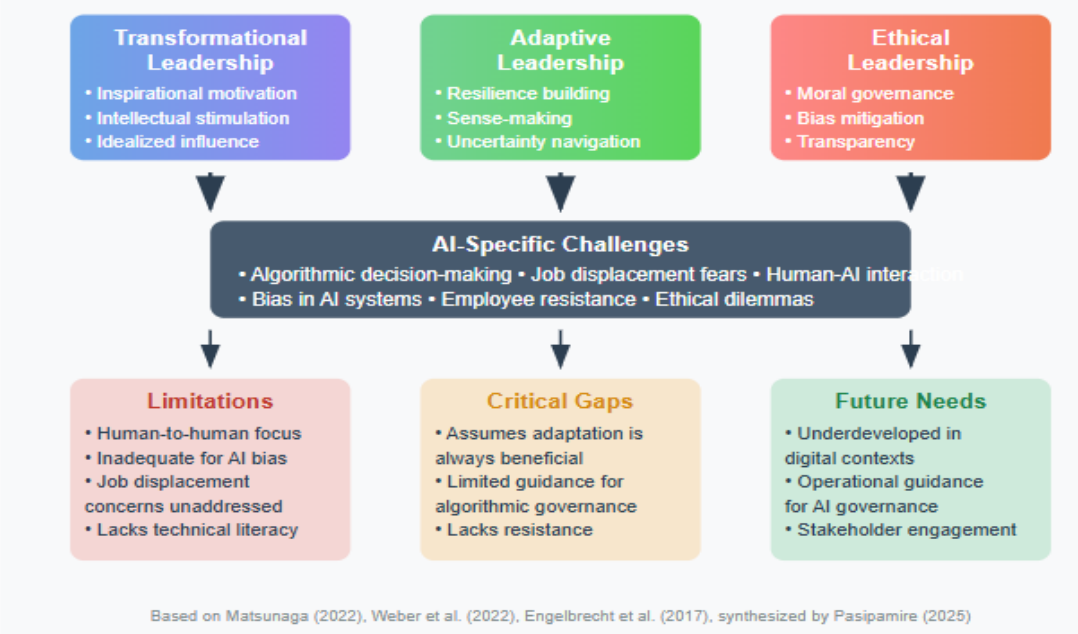


Figure 1: Traditional Leadership Frameworks in AI Context

4.2 AI as a Transformational Disruptor

AI technologies offer both enormous opportunities and unprecedented challenges for organizational leadership (Matsunaga, 2022). While previous technological changes primarily affected routine work, AI impacts white-collar professionals by being able to perform intellectual and creative work, thus making knowledge workers anxious about job loss and professional identity (Tarsuslu et al., 2024). The idea that AI is just another technological disruption that leaders can handle with current frameworks seems increasingly insufficient (Zárate-Torres, 2025). AI systems are equipped with abilities to make decisions on their own, to recognize patterns, and to predict future outcomes that fundamentally change the nature of organizational work and the leadership needed to accomplish it.

4.3 Conceptual Framework

The conceptual framework integrates insights from the literature to show how traditional leadership theories interact with AI-specific disruptions. While transformational, adaptive, and ethical leadership provide useful foundations, their application remains partial in contexts shaped by algorithmic bias, surveillance, and human–technology integration. Figure 2 illustrates this dynamic: traditional frameworks are positioned on the left, AI-driven challenges at the centre, and emerging practices—such as ethical AI governance, stakeholder engagement, and cross-disciplinary collaboration—mediating these tensions on the right (Georgieva et al., 2022; Yang et al., 2025). Contextual factors including culture, infrastructure, and regulation shape outcomes, while feedback loops highlight the bidirectional relationship between leadership practices and organizational resilience (Matsunaga, 2022; Weber et al., 2022). The framework directly reflects the study's objectives: Objective 1 identifies gaps in existing theories; Objective 2 highlights the integrative practices needed to address technical, social, and ethical concerns; and Objective 3 emphasizes contextual adaptation and continuous learning. Rather than restating individual findings, the model consolidates them into an analytic tool that demonstrates how fragmented theories evolve into integrated practices for AI-era leadership.

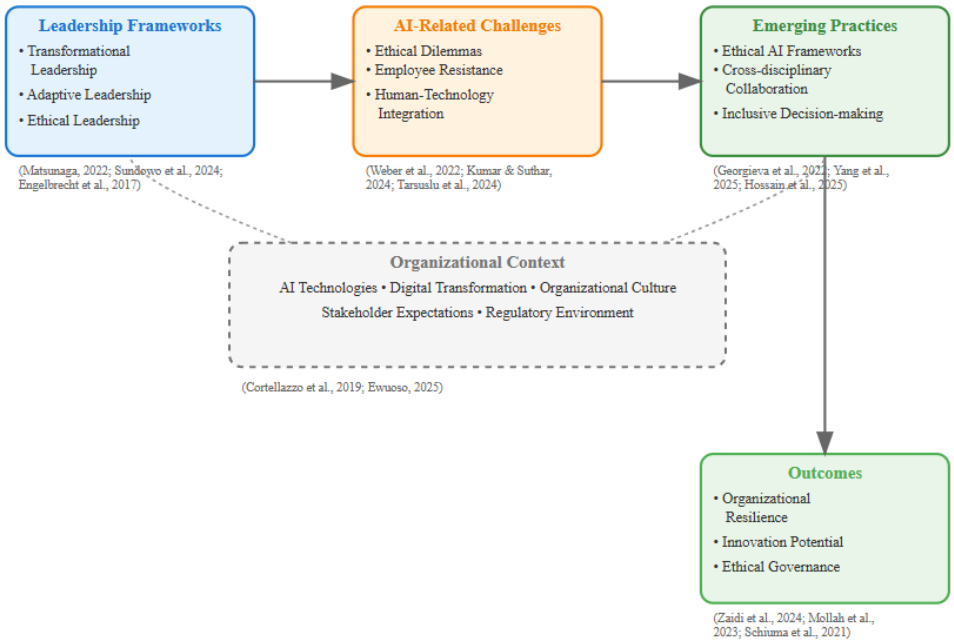


Figure 2: Conceptual Framework: Digital Leadership in the Age of AI

4.4 Empirical Anchors for the Conceptual Framework

The conceptual framework is empirically supported by multiple studies demonstrating the practical relevance of AI-adapted leadership. Matsunaga (2022) shows that traditional leadership theories—transformational, adaptive, and ethical—struggle with AI challenges such as algorithmic bias and human-technology integration, evidenced by cases like Amazon's biased recruitment tool, COMPAS in policing, and IBM Watson for Oncology, a concern also highlighted by Bannor and Baysah (2025). Weber et al. (2022) provide longitudinal and cross-national evidence linking AI adoption to workforce restructuring, showing that proactive leadership interventions yield higher recovery rates (84% vs. 67%) and mitigate displacement impacts. Cortellazzo et al. (2019) highlight that leadership-driven digital culture, collaboration, and ethical practices are critical for successful AI adoption, emphasizing organizational infrastructure and culture alongside individual traits. Georgieva et al. (2022) empirically validate the importance of ethical governance and stakeholder engagement, operationalizing principles such as explainability, bias mitigation, and diversity in AI lifecycle practices. Yang et al. (2025) identify hybrid leadership models that combine AI's analytical strengths with human qualities, supported by interventions like Ethics Impact Statements, "data dignity" audits, and AI Fact Sheets, which enhance adaptability and ethical decision-making. Zaidi et al. (2024) show that transformational leadership fosters employee engagement, resilience, and innovation in AI contexts, while Mollah et al. (2023) confirm that ethical governance and adaptive leadership are critical contingencies for achieving superior AI adoption outcomes and mitigating risks. Collectively, these studies anchor the conceptual framework in real-world evidence, demonstrating that effective AI leadership requires adaptability, ethical oversight, stakeholder engagement, and a culture conducive to responsible innovation.

5. Literature Review

5.1 Adequacy of Traditional Frameworks

Traditional leadership theories offer useful starting points but remain limited in AI contexts. Transformational leadership depends heavily on leaders' digital literacy, without which it is ineffective in reducing employee resistance to AI adoption (Matsunaga, 2022). Adaptive leadership emphasizes resilience but assumes adaptation is always positive, overlooking situations where AI worsens surveillance or job insecurity (Huang et al., 2023). Ethical leadership contributes to trust and fairness but is underdeveloped in contexts where algorithms influence decision-making (Breidbach & Maglio, 2020).

5.2 Emerging Integration Practices

Recent scholarship emphasizes integrated approaches that combine technical, social, and ethical dimensions. Ethical AI governance provides a foundation for transparency and bias auditing, though empirical evidence is

still scarce (Georgieva et al., 2022). Empowerment-based approaches acknowledge employee concerns but risk unintended inequities (Kamin et al., 2022). Cross-disciplinary collaboration and inclusive stakeholder engagement are consistently highlighted as promising strategies for responsible digital governance (Yang et al., 2025; Adie et al., 2024).

5.3 Implementation Challenges

Despite these advances, practical barriers persist. Change management models inadequately address psychological impacts such as job anxiety and identity threats (Cortellazzo et al., 2019). Leadership development programs rarely integrate technical literacy with ethical reasoning and adaptive capacity (Weber et al., 2022). Although ethical governance is increasingly recognized, mechanisms such as bias audits, transparency tools, and consent protocols remain underdeveloped (McGuire & Cremer, 2022; Ewuoso, 2025).

5.4 Critical Gaps in Current Models

Research suffers from weak measurement tools, cultural validity concerns, and limited longitudinal perspectives (Yang et al., 2025; Hossain et al., 2025). Frameworks remain largely unidimensional despite recognition of the need for integrated approaches (Cortellazzo et al., 2019). Leadership development often neglects the integration of technical, ethical, and adaptive competencies (Weber et al., 2022; Zeike et al., 2019). Implementation efforts emphasize efficiency over human factors such as psychological safety and career development (Zen et al., 2023). Ethical governance, though widely acknowledged, lacks operational guidance for transparency, bias auditing, and stakeholder engagement (McGuire & Cremer, 2022).

6. Critical Analysis

The literature on digital leadership remains fragmented and conceptually inconsistent. Definitions vary widely, with some scholars viewing digital leadership as primarily technical expertise, while others stress cultural adaptability, ethics, and inclusivity (Yang et al., 2025). This definitional ambiguity undermines theoretical coherence and raises issues of measurement validity, as most scales remain qualitative and difficult to standardize (Okunlola et al., 2024). Moreover, much of the research displays a techno-deterministic bias, assuming that organizations must adopt every technological advance without critically questioning its desirability or long-term consequences (Huang et al., 2023).

6.1 Fundamental Conceptual Problems

Digital leadership scholarship continues to suffer from conceptual fragmentation and limited theoretical coherence (Okunlola et al., 2024). Definitions range from emphasizing technical expertise to highlighting cultural sensitivity, ethics, and inclusivity (Yang et al., 2025). This inconsistency raises questions about whether digital leadership is merely an extension of established leadership theories or if it requires the development of entirely new theoretical models (Yang et al., 2025). Measurement validity is also problematic, as many existing scales are qualitative and lack standardized instruments, further weakening generalizability (Yang et al., 2025). In addition, much of the literature reflects a techno-deterministic bias, assuming organizations must adapt to every AI-driven innovation without critically assessing whether such adoption is necessary or beneficial. For example, adaptive leadership frameworks often assume that continuous adaptation is inherently valuable, overlooking potential risks and unintended consequences (Huang et al., 2023). Overall, these conceptual inconsistencies limit both the practical application and theoretical advancement of digital leadership.

6.2 Theoretical Contradictions and Unresolved Tensions

Three major tensions characterize the current discourse. First, the instrumental–humanistic divide persists: some approaches prioritize organizational performance and efficiency (Ruël et al., 2020; Nsiah & Gavurová, 2023), while others foreground employee well-being, cultural sensitivity, and ethical responsibility (Zárate-Torres, 2025). Multi-stakeholder governance models that balance these aims may offer a way forward (Georgieva et al., 2022). Second, the gap between empowerment rhetoric and technological control remains unresolved. Although AI is often presented as enabling autonomy, it can simultaneously reduce agency, increase surveillance, and threaten job security (Martínez-Peláez et al., 2023; Kamin et al., 2022). Leaders must therefore move beyond rhetoric by actively involving employees in evaluating empowerment implications before deploying new systems. Third, the pace of AI-driven change outstrips traditional leadership development cycles. While technologies evolve monthly, leadership training and organizational change processes unfold over years, leaving institutions unprepared for constant adaptation (Weber et al., 2022). Continuous learning models with real-time feedback (Sundowo et al., 2024) may better align leadership development with technological acceleration.

6.3 Integration Challenges and Practical Contradictions

Although scholars increasingly acknowledge the need for multidimensional approaches, most leadership models remain unidimensional (Cortellazzo et al., 2019). This prevents leaders from effectively integrating technical literacy, ethical reasoning, and social competencies into coherent strategies. Frameworks such as the "transformative leadership compass" (Schiuma et al., 2021), which connects capabilities, ethics, and stakeholder engagement, offer promising directions but remain underdeveloped. Overall, while the literature provides partial insights, it still lacks an empirically validated, integrated model of digital leadership capable of addressing the complex challenges posed by AI adoption. A reconceptualization is needed—one that treats technical, ethical, and adaptive capacities not as separate domains but as interdependent competencies central to sustainable digital transformation.

6.4 Implications for Theory and Practice

In summary, digital leadership theory has adequacy problems that extend beyond incremental adjustments (Mohan, 2024). Frameworks are needed for human–AI interaction, algorithmic decision-making, and technological autonomy for AI adoption. Research has supported evolutionary approaches, such as extensions of traditional theories to account for their limitations in digital contexts.

7. Implications for Practice

7.1 Reconceptualizing Leadership Development

Instead of merely incorporating AI elements into existing leadership development programs, organizations must rethink leadership development in its entirety (Weber et al., 2022). The evidence demonstrates that leaders need integrated competencies that combine technical literacy, ethical reasoning, and adaptive capacity in ways that current fragmented approaches cannot deliver (Schmidt et al., 2023). Leadership development needs to go beyond awareness of AI to deep technical literacy, which helps leaders understand algorithmic decision-making, identify bias, and evaluate AI system performance (Sposato, 2024). Scenario-based simulations should be integrated into development programs to expose leaders to the ethical and relational dilemmas presented by AI integration.

7.2 Organizational Structure and Governance Implications

Governance frameworks are essential to ensure AI implementation aligns with organizational values and societal expectations, though practical challenges are often underestimated (Georgieva et al., 2022). To address these challenges and the theoretical gaps identified in this review, a multi-dimensional digital leadership framework is needed to guide organizational transformation in the AI era (Yang et al., 2025). *Figure 3* presents this framework, comprising three interlocking, mutually reinforcing domains: technical literacy, ethical reasoning, and adaptive capacity. Feedback loops illustrate how progress in one domain (e.g., technical literacy) enhances others (e.g., ethical reasoning), reflecting the dynamic, evolving nature of AI integration. Unlike static models, this framework positions leadership as an adaptive, iterative process that evolves with technological change. By operationalizing leadership as simultaneously technical, ethical, and adaptive, Figure 3 directly supports **Objective 3** and addresses both conceptual and implementation gaps highlighted in the literature.

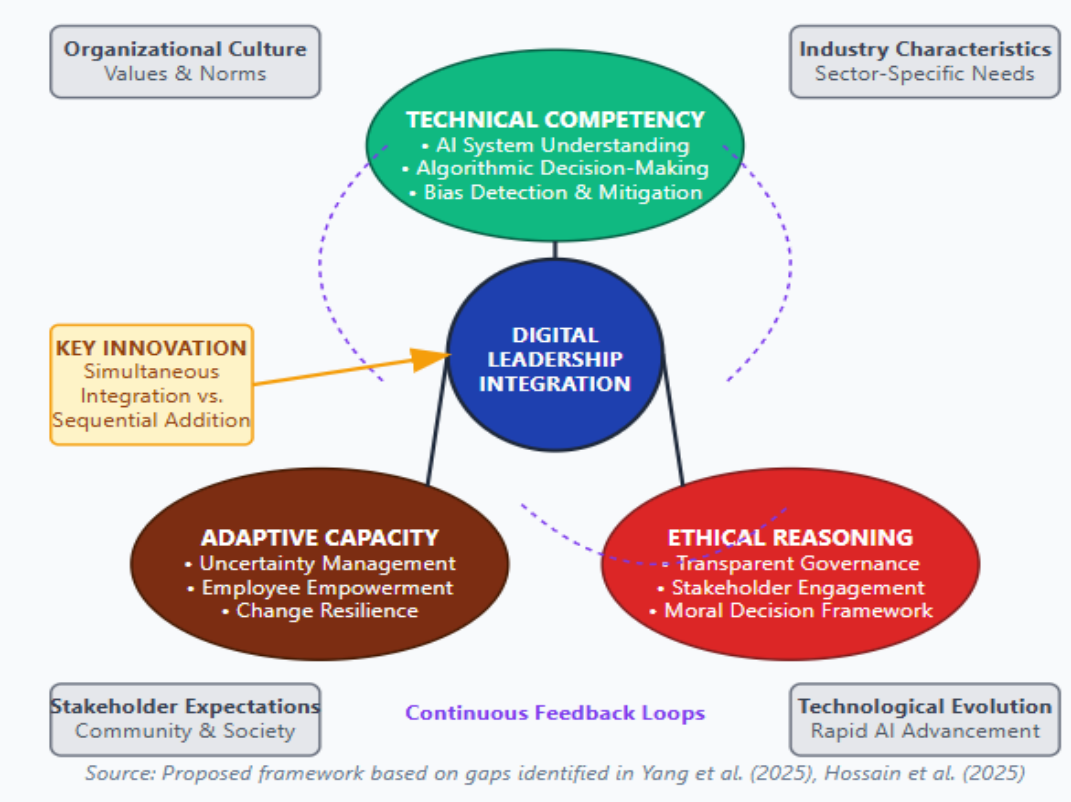


Figure 3: Multi-dimensional Digital Leadership Framework for AI Era

This model explicitly interconnects technical literacy, ethical reasoning, and adaptive capacity instead of treating them as separate domains and addresses the implementation gaps with feedback mechanisms and contextual adaptation, providing operational guidance that existing theoretical models lack (Weber et al., 2022; Zeike et al., 2019). The model differs from overly technical-efficiency approaches by focusing on psychological safety, employee identity considerations, and stakeholder engagement as key elements (Matsunaga, 2022; Tarsuslu et al., 2024). The framework also overcomes measurement limitations through concrete, observable competency indicators that address methodological weaknesses and offer practical tools for leadership development in AI-augmented environments (Shahzad, 2024; Hossain et al., 2025). These multi-directional feedback loops recognize the dynamic nature of AI-driven transformation, transitioning from static models to more adaptive frameworks that evolve as technology and organizational learning progress (Cortellazzo et al., 2019; Sundowo et al., 2024).

8. Conclusions and Recommendations

This review suggests that although transformational and adaptive leadership offer useful conceptual starting points, they fall short when applied to the complexity of AI-driven change, existing frameworks are often fragmented, especially in terms of integrating technical, social, and ethical dimensions, and emerging practices, such as ethical AI governance, inclusive decision-making, and cross-disciplinary collaboration, hold some promise but are underdeveloped and need to be the subject of longitudinal and cross-sectoral studies, going beyond a corporate focus to address more holistic organizational and societal needs.

8.1 Recommendations

- **Redesign Leadership Development Programs:** Leadership development needs to transition from merely being aware of AI to having deep digital literacy to comprehend algorithmic decision-making, recognize bias, and navigate human–AI interaction (Sposato, 2024; Weber et al., 2022).
- **Operationalize Ethical AI Governance:** Organizations should include operational mechanisms for bias audits, transparency tools to make AI decision-making accessible and accountable, and stakeholder engagement mechanisms such as advisory panels, employee feedback loops, and cross-disciplinary ethics boards (Ewuoso, 2025; Kumar and Suthar, 2024).

- **Embed Multi-Dimensional Competencies in Leadership Frameworks:** Leadership models must incorporate technical literacy, ethical reasoning, and adaptive capacity into a cohesive, multi-dimensional framework to support leaders as they navigate AI-driven change (Yang et al., 2025; Hossain et al., 2025).

As digital leadership moves toward more integrated, ethically informed methodologies, it can evolve from a fragmented body of theory to a pragmatic set of practices that enables organizations to navigate AI-driven change.

8.1.1 Limitation

A primary limitation of this review is that the proposed multi-dimensional leadership framework is conceptual and has not yet been empirically validated; while it advances theory by adding technical, ethical, and adaptive dimensions, its effectiveness in practice across organizational contexts is yet to be tested.

8.2 Future Research Directions

To address this limitation and strengthen the field, future studies should:

- Create survey instruments and measurement tools to operationalize competencies in digital literacy, ethical reasoning, and adaptive capacity (Shahzad, 2024).
- Conduct industry-specific case studies to validate the framework in various sectors like healthcare, education, and finance (Zulu & Khosrowshahi, 2021).
- Conduct longitudinal studies to explore how digital leadership evolves over time and affects organizational resilience (Yang et al., 2025; Hossain et al., 2025).

Ethics Declaration: This study did not require ethical clearance as it did not involve human participants, personal data collection, or sensitive information.

AI Declaration: AI tools were used solely for language refinement and grammatical improvements. No AIgenerated content was included in the research, analysis, or original writing of this paper.

References

Adie, B. U., Tate, M., & Valentine, E. (2024). Digital leadership in the public sector: A scoping review and outlook. *International Review of Public Administration*, 29(1), 42-58.

Arham, A. F., Norizan, N. S., Hanapiyah, Z. M., Mazalan, M. I., & Yanto, H. (2024). Enhancing academic performance: Investigating the nexus between digital leadership and the role of digital culture. *The Bottom Line*, 37(3), 253-276. https://doi.org/10.1108/bl-05-2023-0138

Bannor, F. O., & Baysah, J. O. (2025). Ethical leadership challenges in the age of artificial intelligence: An in-depth analysis. *Pan-African Journal of Education and Social Sciences, 6*(2), 76–88. https://doi.org/10.56893/pajes2025v06i02.06

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Breidbach, C., & Maglio, P. (2020). Accountable algorithms? The ethical implications of data-driven business models. *Journal of Service Management*, 31(2), 163-185. https://doi.org/10.1108/josm-03-2019-0073

Cortellazzo, L., Bruni, E., & Zampieri, R. (2019). The role of leadership in a digitalized world: A review. *Frontiers in Psychology*, 10, 1938. https://doi.org/10.3389/fpsyg.2019.01938

Engelbrecht, A., Heine, G., & Mahembe, B. (2017). Integrity, ethical leadership, trust and work engagement. *Leadership & Organization Development Journal*, 38(3), 368-379. https://doi.org/10.1108/lodj-11-2015-0237

Ewuoso, C. (2025). What is the harm of the digital divide that must be the object of digital inclusion work and strategies? A systematic review. *Cogent Social Sciences*, 11(1), 2527965.

Georgieva, K., Schiuma, G., & Lerro, A. (2022). Ethical frameworks for digital transformation: A leadership perspective. *Journal of Business Ethics*, 178(4), 851-867.

Hossain, S., Fernando, M., & Akter, S. (2025). Digital leadership: Towards a dynamic managerial capability perspective of artificial intelligence-driven leader capabilities. *Journal of Leadership & Organizational Studies*, 32(2), 189-208. https://doi.org/10.1177/15480518251319624

Huang, J., Jiang, R., & Chang, J. (2023). The effects of transformational and adaptive leadership on dynamic capabilities: Digital transformation projects. *Project Management Journal*, 54(4), 428-446. https://doi.org/10.1177/87569728231165896

Kamin, T., Kubacki, K., & Atanasova, S. (2022). Empowerment in social marketing: Systematic review and critical reflection. *Journal of Marketing Management*, 38(11-12), 1104-1136.

Kumar, D., & Suthar, N. (2024). Ethical and legal challenges of ai in marketing: An exploration of solutions. *Journal of Information Communication and Ethics in Society*, 22(1), 124-144. https://doi.org/10.1108/jices-05-2023-0068

Li, M., Zhang, Q., Wang, F., & Chen, L. (2024). Digital ecosystem leadership: Navigating platform-based organizational transformation. *Digital Business Review*, 8(2), 45-62

Martínez-Peláez, R., Ochoa-Brust, A., Manrique, S. I. R., Félix, V. G., Ostos, R., Brito, H., … & Mena, L. J. (2023). Role of digital transformation for achieving sustainability: mediated role of stakeholders, key capabilities, and technology. Sustainability, 15(14), 11221. https://doi.org/10.3390/su151411221

Matsunaga, M. (2022). Uncertainty management, transformational leadership, and job performance in an AI-powered organizational context. *Communication Monographs*, 89(1), 118-139.

McGuire, J., & Cremer, D. D. (2022). Algorithms, leadership, and morality: Why a mere human effect drives the preference for human over algorithmic leadership. *AI and Ethics*, 2(2), 601-618. https://doi.org/10.1007/s43681-022-00192-2

Mollah, M. A., Choi, J., Hwang, S., & Shin, J. (2023). Exploring a pathway to sustainable organizational performance of South Korea in the digital age: The effect of digital leadership on it capabilities and organizational learning. *Sustainability*, 15(10), 7875. https://doi.org/10.3390/su15107875

Nsiah, T. K. and Gavurová, B. (2023). Unveiling the mediating nexus of digital transformation on digital leadership and enterprise performance in manufacturing firms. European Conference on Management Leadership and Governance, 19(1), 480-487. https://doi.org/10.34190/ecmlg.19.1.1944

Okunlola, J. O., Naicker, S. R., & Uleanya, C. (2024). Digital leadership in the fourth industrial revolution enacted during the COVID-19 pandemic: a systematic review. *Cogent Education*, *11*(1). https://doi.org/10.1080/2331186X.2024.2317258

Ruël, H., Rowlands, H., & Njoku, E. (2020). Digital business strategizing: the role of leadership and organizational learning. Competitiveness Review an International Business Journal Incorporating Journal of Global Competitiveness, 31(1), 145-161. https://doi.org/10.1108/cr-11-2019-0109

Sacavém, A., Martinez, L. F., & Oliveira, T. (2025). Digital leadership capabilities in the age of artificial intelligence: A systematic review and future research agenda. *Technology in Society*, 70, 102087.

Schiuma, G., Schettini, E., & Santarsiero, F. (2021). How wise companies drive digital transformation. *Journal of Open Innovation Technology Market and Complexity*, 7(2), 122. https://doi.org/10.3390/joitmc7020122

Shahzad, M. U. (2024). Core competencies for digital leadership development: A perspective from the lens of paradox theory. *The Bottom Line*, 37(4), 454-472. https://doi.org/10.1108/bl-10-2023-0278

Sposato, M. (2024). Leadership training and development in the age of artificial intelligence. *Development in Learning Organizations an International Journal*, 38(4), 4-7. https://doi.org/10.1108/dlo-12-2023-0256

Sundowo, A. W., Hermawan, A., Wijayanto, D., Ikhsan, M., Rachmad, F., Kuswoyo, Y., ... & S., S. A. (2024). Transformative adaptive leadership in the digital age: A systematic review of emerging paradigms and socio-economic implications for organizational resilience. *Journal of Social and Economics Research*, 6(2), 128-136. https://doi.org/10.54783/jser.v6i2.636

Tarsuslu, S., Ağaoğlu, F. O., & Baş, M. (2024). Can digital leadership transform ai anxiety and attitude in nurses? *Journal of Nursing Scholarship*, 57(1), 28-38. https://doi.org/10.1111/jnu.13008

Wasono, L., & Furinto, A. (2018). The effect of digital leadership on organizational agility. *International Journal of Business and Society*, 19(2), 335-348.

Weber, E., Krehl, E., & Büttgen, M. (2022). The digital transformation leadership framework: Conceptual and empirical insights into leadership roles in technology-driven business environments. *Journal of Leadership Studies*, 16(1), 6-22. https://doi.org/10.1002/jls.21810

Yang, M., Li, J., Rowley, C., Chen, W., & Feng, Y. (2025). Digital leadership: Conceptualization, measurement, and its impact on corporate performance. *Asia Pacific Business Review*. https://doi.org/10.1080/13602381.2025.2543370

Zaidi, S., Aslam, M., Mahmood, F., Ahmad, B., & Raza, S. (2024). How will artificial intelligence (ai) evolve organizational leadership? Understanding the perspectives of technopreneurs. *Global Business and Organizational Excellence*, 44(3), 66-83. https://doi.org/10.1002/joe.22275

Zárate-Torres, R. (2025). Influence of leadership on human–artificial intelligence collaboration. *Behavioral Sciences*, 15(7), 873. https://doi.org/10.3390/bs15070873

Zeike, S., Bradbury, K., Lindert, L., & Pfaff, H. (2019). Digital leadership skills and associations with psychological well-being. *International Journal of Environmental Research and Public Health*, 16(14), 2628. https://doi.org/10.3390/ijerph16142628

Zulu, S. L., & Khosrowshahi, F. (2021). A taxonomy of digital leadership in the construction industry. *Construction Management and Economics*, 39(7), 565-578. https://doi.org/10.1080/01446193.2021.1930080

Strategic Interagency Collaboration and Regional Stability: Lessons from Nigeria–Benin Border Governance

Ugochukwu D. Abasilim, Comfort Olanrewaju Sofela, Daniel Eseme Gberevbie and Oluwakemi D. Udoh

Department of Political Science and International Relations, College of Leadership and Development Studies, Covenant University, Ota, Ogun State, Nigeria

ugochukwu.abasilim@covenantuniversity.edu.ng
comfort.sofela@covenantuniversity.edu.ng
daniel.gberevbie@covenantuniversity.edu.ng
oluwakemi.udoh@covenantuniversity.edu.ng

Abstract: The growing complexity of transnational security threats is rendering a standalone institutional approach to border management ineffective. Matters related to smuggling, illegal immigration, trafficking, illicit trade in weapons and other criminal activities transcend borders and demand the participation of multiple agencies in their resolution. In this paper, we will analyse interagency strategic collaboration to determine how it helps maintain regional stability in border management, specifically in the Nigeria-Benin border region. We are going to examine the influence of institutional collaboration, information sharing, joint operations, and policy integration on the efficiency of border control efforts. The research in the present paper follows a qualitative descriptive case study methodology and focuses on the governance of the Nigeria-Benin border. The data for the research were collected from secondary sources and analysed using thematic content analysis, guided by Collaborative Governance Theory and Strategic Management Theory. However, several issues, including institutional competition, disjointed administrative structures, insufficient technology infrastructure, and financial constraints, continue to compromise the effectiveness of cooperative initiatives. As a result, the study concludes that bolstering cooperative governance systems is crucial to fostering long-term regional stability and improving border management efficiency in the area.

Keywords: Border, Governance, Interagency, Collaboration, Nigeria–Benin border, Regional stability

1. Introduction

The development of transnational security threats has become increasingly sophisticated, posing a challenge to states' capacity to manage borders using separate institutional arrangements. Current security challenges, such as smuggling, irregular migration, trafficking in persons, arms proliferation, and criminal activities, increasingly transcend administrative and territorial boundaries, necessitating joint efforts of several institutions and states (Gana, Adamu, and Zakariya'u, 2023; International Organisation for Migration (IOM), 2019). Traditional state-centred and agency-specific approaches to addressing current multidimensional security challenges have become increasingly inadequate because these challenges often cut across interconnected social, economic, and political systems (Mbandlwa, 2025). In turn, border regions have become complex governance spaces requiring a collaborative institutional approach that balances economic openness with security needs (Logvinov et al., 2025).

Globalisation and regional integration have accentuated these facts through increased flows of people, goods, services, capital, and information across international borders. Even though globalisation processes create important opportunities for economic growth, regional trade, and socio-economic integration, they also pose significant governance challenges related to transnational insecurity and cross-border vulnerability (Onu & Oche, 2025). In particular, West Africa has witnessed the rise of these challenges due to increased mobility in the region facilitated by the Economic Community of West African States (ECOWAS) Protocol on Free Movement of Persons, Goods and Services (ECOWAS, 1979). Even though regional integration processes have greatly expanded trade and socio-economic relations among member states, they have also increased the complexity of border management, creating opportunities for both legitimate and illicit cross-border activities (Shedrack & Kelechi, 2025).

The Nigeria-Benin border is one of the most active and strategically important transnational corridors in West Africa. Extending to approximately 773 km, this border is one of the key trade routes in the region. Besides its economic role, the corridor is also important for regional trade and mobility under ECOWAS arrangements. Unfortunately, the same features that enable economic interactions are also what make the border corridor vulnerable to security challenges, including smuggling of petroleum products, trafficking in persons, proliferation of small arms, drug trafficking, and irregular migration (Albert-Makyur & Mbanaso, 2022).

The Nigeria-Benin border corridor is an important case for studying collaborative border governance, as it combines high levels of legitimate and illegitimate interactions with security vulnerabilities and established mechanisms of bilateral and regional cooperation (Chukwudi et al, 2024). The recent example of Nigeria's temporary border closure policy in 2019 only confirms the importance of this approach because even though the objective of the policy was to strengthen border security and counter smuggling, it turned out that the border closure was not enough to tackle the complex transnational security challenge (Akinola & Adesopo, 2021). This experience once again confirmed the idea that effective border governance is increasingly a matter of collaborative response rather than fragmented action by individual agencies.

Traditionally, border governance has been based on the independent operation of customs services, immigration departments, law enforcement, intelligence, and military agencies within their administrative mandate. In turn, modern security challenges require collaborative mechanisms that help increase coordination, facilitate information exchange, enable joint operations, and support integrated policies.

Battisti, Cuomo, and Manganelli (2025) define collaborative governance as a process in which public institutions involve various actors in collective decision-making arrangements to achieve a goal that is hard to achieve individually. At the same time, the effectiveness of collaborative governance depends on principled engagement, mutual trust, shared motivation, and the ability of all parties involved to take joint action (Emerson et al., 2012; Farazmand, 2023). As far as strategic management is concerned, Seo, Bryson, Crosby, Williams, and Cheng (2025) emphasise the importance of institutional alignment, coordinated resource use, organisational flexibility, and strategic thinking in achieving common goals. The combination of Collaborative Governance Theory and Strategic Management Theory is useful for analysis because collaborative governance helps to understand the relational and institutional aspects of interagency interaction. On the other hand, strategic management sheds light on the process by which organisations manage their resources, capabilities, and institutions to pursue common objectives (Joshua et al, 2021).

Despite the rising academic interest in border security and regional cooperation in West Africa, contemporary research mostly concentrates on aspects such as migration dynamics, trade facilitation, regional integration and security issues. However, few studies consider aspects of interagency cooperation which involve coordination, information exchange, joint operations, and policy integration.

In this context, the present paper addresses the problem of interagency cooperation, a key tool for fostering regional stability through border governance at the Nigeria-Benin border. Specifically, this study will look into the impact of interagency cooperation (coordinating, exchanging information, conducting joint operations, and integrating policies) on the efficiency of border governance institutions.

This paper has made three main contributions to the current literature. First, the paper has developed a theoretical perspective by combining Collaborative Governance Theory and Strategic Management Theory in explaining interagency collaboration and its effects. Secondly, the focus of this paper has shifted from institutional actions in isolation to collaborative processes that help manage borders effectively. Lastly, this paper provides an empirical analysis of the governance process at the Nigeria-Benin border.

This paper is further divided into the following sections. The next section discusses the paper's theoretical framework. The next section discusses the methodology followed in this paper. It discusses the methodological strategy and data used in this paper. The next sections discuss results from the areas of institutional coordination, information sharing, joint operations, and policy integration and conclude with policy recommendations.

This version of the paper now reads like a governance conference paper.

2. Methodology

The present study employs a qualitative descriptive case study approach, with the Nigeria-Benin border governance system as the embedded case study. This qualitative case study method was found to be ideal, as it would enable the thorough exploration of the complex interactions and collaborations in the actual governance environment (Yin & Jamali, 2021). The Nigeria-Benin border was deliberately chosen owing to its importance in West African security and economic systems, its role in the ECOWAS free movement system, and its long experience in addressing transnational security threats such as smuggling, irregular migration, trafficking, and illicit trade. (Chidozie et al, 2025).

In the current research, the sources of information are secondary data. To increase the analytical relevance and timeliness of the collected information, the focus was on literature published between 2021 and 2026.

Data were analysed using thematic content analysis following Braun and Clarke's (2006) framework. The analytical process involved:

- familiarisation with documentary materials;
- coding of recurring concepts and patterns;
- grouping codes into broader themes; and
- interpretation of relationships among identified themes.

The major themes that were identified from the analysis include:

- coordinating across institutions;
- intelligence and information sharing;
- operations and enforcement actions;
- integration and harmonisation of policies; and
- barriers to interagency cooperation.

3. Results and Discussion

Institutional Coordination and Border Governance Effectiveness

One of the objectives of the aforementioned studies was to assess the effects of institutional coordination on governance efficiency in the Nigerian-Benin borderlands. The findings reveal that institutional coordination is one of the key factors facilitating effective cross-border security governance.

The analysis of the regional Nigerian-Benin initiatives reveals that coordination between customs authorities, immigration authorities, policing agencies, and other security agencies becomes more effective and efficient. Regional initiatives, such as the implementation of the ECOWAS Integrated Border Management concept and joint border operations, including the Seme-Krake Joint Border Post, foster cooperation through integrated operations, information systems, and coordinated actions. Such approaches facilitate interaction among different agencies and enable them to respond to security threats in a coordinated manner.

On the other hand, the documentation review shows that fragmented institutional arrangements create challenges, including duplication of functions, coordination problems, slow responses to security threats, and other issues that undermine agency efficiency. Such problems prevent agencies from responding to multidimensional security threats (Jatau et al, 2026).

Thus, the results support the conclusions of AbouAssi et al (2021) that cross-sector cooperation helps organisations coordinate resource use and increase organisational efficiency. At the same time, Collaborative Governance Theory argues that cooperation between institutions is the mechanism of collective action that improves governance outcomes (Bates, 2025). Hence, institutional coordination leads to increased efficiency and regional stability.

Information Sharing and Regional Stability

The second objective was to examine how information sharing among agencies working at the border and in security impacts regional stability. The findings reveal information sharing as one of the most crucial variables affecting the success of the collaborative border governance model.

Effective information systems allow for enhancing:

- threat recognition;
- early warning systems;
- reaction;
- decision-making process.

Information sharing helps agencies detect and respond to security threats effectively before they cause trouble. According to a documentary analysis conducted by the African Union Border Programme, insufficient information systems continue to prevent effective border governance across various African countries (African Union, 2016). Furthermore, the International Organisation for Migration notes that the coordination of information among various organisations is key in the management of migration and transnational crimes (IOM, 2019).

The results indicate that information asymmetry creates vulnerabilities within institutions that can be exploited by criminals involved in trafficking, smuggling, arms trading, and immigration. Therefore, an integrated information system is a valuable tool for improving regional security and the effectiveness of border governance.

These findings align with the ideas of Cepiku, Giordano, and Mastrodascio (2024) about how collaboration depends on mutual motivation, trust, and a shared action potential.

Joint Operations and Security Outcomes

The third objective assessed the effects of joint operations on cross-border security management. The results reveal that joint operations greatly enhance the efficiency of institutional activities by enabling coordinated enforcement actions and comprehensive responses to security issues.

Some of the collaborative operational practices include:

- joint border patrolling;
- anti-smuggling operations;
- joint surveillance activities;
- intervention based on intelligence.

Joint operational processes enhance institutional synergy and help eliminate overlap in security responsibilities among participating institutions. According to evidence gathered on border security arrangements in Nigeria-Benin, joint enforcement actions significantly enhance institutional capacities to counter security threats compared to those of isolated institutions (Sowale & Ukeje, 2025; Olomu et al., 2024).

The experience of the 2019 border closure in Nigeria also highlighted the limitations of a unilateral security approach and the need for a coordinated strategy that involves various actors and institutions to ensure border security (Kanu & Olua, 2025; Nebeife et al., 2022). Although temporary restrictions can help achieve specific goals, achieving sustainable results depends on collaboration.

However, the results show that poor logistics, inadequate technological infrastructure, insufficient funding, and unequal institutional capacities across agencies constrain operational efficiency.

From the perspective of Strategic Management, joint operations are the coordinated use of institutional resources, capabilities, and information systems to achieve the highest level of operational efficiency and to advance collective security objectives. The collaborative governance research also confirms that coordinated action positively affects organisational efficiency and problem-solving capacity (Waardenburg et al, 2025).

Policy Integration and Strategic Governance

Objective four sought to assess the effect of policy integration in enhancing governance effectiveness. The findings revealed that policy integration plays an integral role in improving governance effectiveness by harmonising policies and coordinating processes.

Policy integration promotes consistency across institutions and addresses the contradictions that are typically created by the fragmentation of the governance system. Harmonisation of border processes, security, and regional operations promotes coordination within the institution and ensures effective implementation.

For instance, ECOWAS protocols of free movement and regional cooperation form an important policy basis for border governance and security management in West Africa (ECOWAS, 1993). Likewise, the African Union Border Programme emphasises policy harmonisation as an important way of promoting border security and regional integration (African Union, 2016).

In addition, policy integration promotes strategic governance by aligning institutional objectives with regional development and security objectives.

Challenges Limiting Effective Interagency Collaboration

The fifth research objective addressed the challenge of identifying barriers to effective collaboration among institutions within Nigeria-Benin border management systems. Findings identified various existing barriers to effective collaboration:

- agency rivalry;
- bureaucracy;
- lack of effective funding schemes;

- poor technological integration;
- poor intelligence capability;
- policy inconsistency.

Such barriers negatively affect the effectiveness of any collaboration framework and institutions' ability to sustain cooperation. From these findings, it can be concluded that the success of collaborative efforts depends not only on the presence of an institutional framework and policies, but also on the capacity to implement them and the willingness of participating institutions. Emerson et al. (2012) assert that institutional trust and collaboration capability are important determinants of effective governance.

4. Conclusion

In this regard, this research paper investigated the role of interagency cooperation in ensuring regional stability through border governance mechanisms, focusing on Nigeria and the Republic of Benin. In particular, the research evaluated the impact of institutional coordination, information exchange, joint actions, and policy integration on the effectiveness of border governance measures. Accordingly, the results of this study revealed that current challenges in border governance largely exceed the operational capacities of the institutions involved and, therefore, necessitate a collaborative approach involving multiple institutions and actors. According to data gathered along the Nigeria-Benin border corridor, institutional coordination increases the efficiency of measures by eliminating function duplication and enhancing the ability to counter transnational security threats. At the same time, efficient information exchange systems enhance intelligence-gathering, early warning, and responsiveness to emerging threats.

Also, according to the research, the joint operations enhance enforcement capabilities and increase institutional coordination of security measures. The role of policy integration in enhancing governance effectiveness was also important because it contributes to harmonising procedures and ensuring institutional consistency. However, despite these achievements, certain obstacles to successful collaboration remain, namely institutional rivalry, bureaucratic fragmentation, insufficient technological infrastructure, insufficient financial resources, and weak intelligence systems. Therefore, this paper concludes that interagency collaboration is not only about operational security but is also an important part of contemporary governance. The sustainability of regional stability in the corridor between Nigeria and Benin depends largely on the ability of institutions to develop a framework for coordination, communication, and integration in response to security challenges.

5. Recommendations

In light of the results obtained from this research, the following recommendations can be made:

- The governments of Nigeria and the Republic of Benin must develop better mechanisms of coordination within their institutions through the use of formalised interagency mechanisms defining roles, methods of communication and the process of cooperation.
- The border and security agencies should create an integrated information-sharing system, which will allow them to communicate with each other and coordinate actions to deal with security threats.
- The joint operations involving the customs, immigration, police and other security organisations should be organised regularly.
- The governments should provide their border management with the necessary modern infrastructure, such as surveillance systems, databases, biometric systems and an intelligence management system.
- The capacity-building programmes should be implemented by organising joint training sessions for border officials aimed at increasing collaboration and effectiveness of cooperation between organisations.

Acknowledgements

The authors would like to thank the Covenant University Centre for Research, Innovation, and Discovery (CUCRID) for funding the conference and publication expenses, as well as the anonymous peer reviewers for their informative remarks.

AI Declaration: Grammarly was utilised to improve grammatical consistency and flow.

Ethics Statement: In this study, only secondary sources of data and documentation were utilised; no human subjects were involved in interviews, surveys, or the collection of personally identifiable data. Thus, no ethical

approval or informed consent was required. All sources used in this study have been cited, and the analysis was conducted objectively.

References

AbouAssi, K., Bowman, A.O.M., Johnston, J.M., Bauer, Z. & Tran, L. (2021). Relations, resources, and costs: Exploring cross-sectoral collaboration at the local level in a developing country. *International Public Management Journal*, *24*(5), pp.646–672.

Albert-Makyur, S.D. & Mbanaso, M.U. (2022). Irregular migration and governance: Implications for Nigeria. *Journal of Global Social Sciences*, *3*(11), pp.135–171.

Bates, M. (2025). 'Developing an evidence-based model to implement co-governance', *Australian Journal of Public Administration*, 84(1), pp. 1–19.

Battisti, L., Cuomo, F. & Manganelli, A. (2025). Collaborative governance arrangements: what makes nature-based solutions endure?. *Territory, Politics, Governance*, *13*(10), pp.1421–1441.

Chidozie, F., Osimen, G.U., Bhadmus, J. & Newo, O. (2025). Sustainable development goals implementation in a post-colonial African state: any future for the African continental free trade area?. *Sustainable Development*, *33*(1), pp.1479–1490.

Chukwudi, C.E., Osimen, G.U., Dele-Dada, M. & Ahmed, T.M. (2024). Conflict and security challenges in the Sahel's semi-arid region: implications for Sahel women's empowerment and the demographic dividend (SWEDD). *Journal of Somali Studies*, *11*(1), pp.81–108.

Economic Community of West African States (2024) *ECOWAS Integrated Border Management Strategy 2024–2028*. Abuja: ECOWAS Commission.

Farazmand, A. (2023). 'Collaborative governance and public administration in the era of complexity', *Public Organisation Review*, 23(4), pp. 743–760.

Jatau, M.P., Chidozie, F. & Lenshie, N.E. (2026). When Violence Targets Meaning: Improvised Explosive Devices (IEDs), Cultural Harm, and Human Security in Southeast Nigeria. *Society*, pp.1–15.

Joshua, S., Gberevbie, D. & Onor, K. (2021). Building security through insecurity: The Nigerian military and counter-violent campaigns in the fourth republic. *Armed Forces & Society*, *47*(1), pp.177–200.

Logvinov, P., Buriachenko, A., Gaponiuk, M., Petrukha, S. & Siusko, M. (2025). EU cohesion policy and cross-border cooperation: Strategies for sustainable development of the Carpathian region. *International Journal of Organisational Leadership, 14, pp.* 170–189.

Mbandlwa, Z., 2025. Challenges of International Collaborative Governance in Africa. *Journal of Cultural Analysis and Social Change*, pp.293-302.

Musoni, M., Karkare, P. & Teevan, C. (2024). Cross-border data flows in Africa: Continental ambitions and political realities. *Maastricht: ECDPM*.

Nebeife, C. J., Chinwuba, M. E., & Onwuanibe, J. O. (2022). "ECOWAS regional integration and trans-border security management in Nigeria", *Journal of Contemporary International Relations and Diplomacy*. Ado-Ekiti, Nigeria, 3(1), pp. 379–399. doi: 10.53982/jcird. 2022.0301.04-j.

Olomu, B., Saulawa, S.T. & Murtala, S.M. (2024). 'Illicit trade and its implications on national security: An assessment of Seme–Krake Joint Border Post', *Journal BPPK*, 17(3), pp. 243–256.

Olomu, B., Saulawa, S. T. & Murtala, S. M. (2024). "Illicit trade and its implications on national security: an assessment of seme-krake joint border post ", *Journal BPPK: Badan Pendidikan dan Pelatihan Keuangan*, 17(3), pp. 243–256. Available at: https://jurnalbppk.kemenkeu.go.id/jurnalbppk/article/view/886 (Accessed: 8 June 2026).

Onu, F.O. & Oche, I.O. (2025). Globalisation, Transnational Organised Crime, and Nigeria Development Quest: A Desk-Based Survey. In *The Palgrave Handbook of (In) Security and Transnational Crime in Africa* (pp. 155–166). Cham: Springer Nature Switzerland.

Osimen, Goddy Uwa, Edwin Ochoga, and Judith Ehibor. "ECOWAS Integration Policy and the Dynamics of Trans-border Mobility in West Africa." *Ianna Journal of Interdisciplinary Studies* 7, no. 2 (2025): 660–672.

Seo, D., Bryson, J.M., Crosby, B.C., Williams, M., & Cheng, Y. (2025). Achieving organisational transformation: Leadership and strategic planning as a structurational process. *International Public Management Journal*, pp.1–19.

Shedrack, C. & Kelechi, N.B. (2025). Border Management and Insecurity in Nigeria. *International Journal of Research and Innovation in Social Science (IJRISS)*, *9*(10).

Sowale, A. and Ukeje, C. (2025). 'Hybrid security in Nigeria–Benin borderlands: Formal and informal security actors' collaboration and implications for cross-border security (2010–2023)', *African Security Review*, 34(2), pp. 134–151. doi: 10.1080/10246029.2024.2419065.

Voets, J.J., Brandsen, T., Verschuere, B. and Koliba, C., 2021. Collaborative governance.

Waardenburg, M., Groenleer, M. & de Jong, J. (2025). Performance management in collaborative governance: a review of the literature and synthesis of the challenges. *Public Performance & Management Review*, *48*(4), pp.735–767.

World Customs Organisation (2023) *Coordinated Border Management Compendium*. Brussels: World Customs Organisation.

Yin, J. & Jamali, D. (2021). Collide or collaborate: The interplay of competing logics and institutional work in cross-sector social partnerships. *Journal of Business Ethics*, *169*(4), pp.673–694.

Static and Nomadic Third Culture Adult (TCA) Pathways

Vic Benuyenah
Birmingham Business School, University of Birmingham, UK/Dubai

vbenuy01@gmail.com

Abstract: Third-culture scholarship has largely explained identity development through international mobility and repeated geographical relocation (Tan et al., 2021; Jones et al., 2022). This theory-building paper questions whether mobility is necessary for Third Culture Adult (TCA) identity formation. It develops a dual-pathway account distinguishing Nomadic and Static TCAs. The Nomadic pathway involves recurrent adaptation as individuals move across geographical and cultural settings. The Static pathway involves cumulative cultural negotiation as individuals remain geographically anchored while experiencing sustained cultural plurality. The distinction separates geographical movement from cultural boundary-crossing and shifts attention towards how cultural encounters are organised and accumulated over time. Mobility is therefore positioned as one pathway to TCA identity rather than a necessary condition, from which propositions for subsequent empirical examination are developed.

Keywords: Third culture adults, Nomadic TCA, Static TCA, Expatriate identity, Cultural identity

1. Introduction

International mobility has long occupied a prominent position in explanations of third-culture identity. From the early conceptualisation of Third Culture Kids (TCKs), movement between national and cultural environments has been treated as an important condition through which individuals encounter multiple cultures and develop identities not located exclusively within either home or host culture (Useem et al., 1963; Pollock et al., 2017). Subsequent research similarly associates third-culture experience with international relocation, cultural adaptation and the negotiation of belonging (Fail et al., 2004; Grimshaw & Sears, 2008; Moore & Barker, 2012; Tan et al., 2021). The related idea of the 'global nomad' further reflects the close association between mobility and third-culture experience (Colomer, 2020).

Yet geographical movement and cultural boundary-crossing are not equivalent in practice or theory. Individuals may cross national borders 'physically', while remaining within relatively bounded expatriate, organisational or social environments; others may remain geographically anchored while repeatedly navigating different cultural communities, norms and interpretive frames. The emerging Third Culture Adult (TCA) concept makes this distinction particularly important because it extends third-culture identity beyond childhood mobility to include long-term expatriates and adult immigrants whose culturally plural experiences may develop through prolonged settlement (Benuyenah & Mustafa, 2024). This raises the possibility that third-culture identity may emerge not only across places, but also '*within place*'.

This paper therefore distinguishes geographical mobility, denoting physical relocation across national settings, from cultural boundary-crossing, denoting sustained or recurrent engagement across different cultural frames, practices and social environments.

Third-culture research has largely developed from populations whose experiences are characterised by international relocation, leaving comparatively limited explanatory space for adults exposed to multiple cultures through long-term geographical anchoring (Tan et al., 2021; Jones et al., 2022; Benuyenah & Mustafa, 2024). What remains under-theorised is whether these different configurations of cultural exposure constitute distinct pathways towards TCA identity.

Addressing this gap requires attention not simply to who experiences cultural plurality, but to how different spatial and temporal formations of such experience may contribute to a similar identity outcome (Whetten, 1989). The paper therefore asks: *How can Third Culture Adult identity be theorised beyond the conventional emphasis on repeated geographical mobility?* In response, two analytically distinct pathways are developed: a Nomadic TCA pathway, in which cultural experience accumulates substantially through recurrent relocation, and a Static TCA pathway, in which it accumulates through sustained cultural plurality under relative geographical anchoring.

2. Reconsidering the Pathways to Third Culture Adult Identity

The dual-pathway account distinguishes the spatial and temporal organisation of culturally consequential experience. The Nomadic TCA pathway locates third-culture identity in repeated international relocation and the cultural transitions accompanying movement between national settings. The Static TCA pathway locates it

in prolonged exposure to cultural plurality while an individual remains substantially anchored in a single host country. The pathways therefore distinguish geographical movement from cultural boundary-crossing: the two may coincide, but need not.

Third-culture identity may consequently depend less exclusively on relocation frequency than on the duration, intensity and diversity of cultural encounters through which identity is negotiated. This is consistent with acculturation and bicultural identity research showing that sustained engagement with multiple cultural systems can reshape cultural identification and the incorporation of multiple cultural identities within the self (Berry, 1997; Benet-Martínez & Haritatos, 2005).

Table 1: Conceptual Foundations of Nomadic and Static Third Culture Adult Pathways

Dimension	Nomadic Third Culture Adult (Nomadic TCA) pathway	Static Third Culture Adult (Static TCA) pathway	Conceptual anchor
Geographical mobility	Repeated international relocation	Limited international relocation; sustained geographical anchoring	TCK/ATCK literature strongly associates third-culture experience with international mobility (Tan et al., 2021; Jones et al., 2022).
Cultural exposure	Exposure across successive national and cultural settings	Sustained exposure to cultural plurality within one host setting	Existing TCK/ATCK research highlights the importance of exposure to multiple cultural settings; the Static TCA pathway extends the TCA conceptualisation to long-term adult settlement (Hartman, 2022; Benuyenah & Mustafa, 2024)
Temporal pattern of exposure	Episodic/recurrent, associated with relocation	Cumulative/prolonged within the same geographical setting	Mobility and transition literature provides the basis for the nomadic pattern; the cumulative static pattern is theoretically developed here (Kwon, 2019; Jones et al., 2022).
Cultural boundary-crossing mechanism	Cultural boundaries crossed substantially through relocation and adaptation	Cultural boundaries crossed substantially through repeated intercultural interaction while geographically anchored	Mobility research distinguishes physical movement from associated subjective processes, providing a conceptual precedent for separating geographical movement from cultural boundary-crossing (Zikic et al., 2010).
Identity-development mechanism	Repeated transition and adaptation contribute to continuing identity negotiation and reconstruction	Accumulated intercultural encounters are theorised to contribute to continuing identity negotiation and reconstruction	Existing TCK/ATCK identity literature provides the basis for the nomadic mechanism; the static mechanism constitutes the theoretical extension advanced here.

Note: The pathways are analytically distinct but not necessarily mutually exclusive over time. The Static TCA pathway is proposed as a theoretical extension; its empirical equivalence to the Nomadic pathway remains to be established.

As summarised in Table 1, the pathways consequently differ in how cultural difference is encountered over time. Nomadic exposure is principally episodic and relocation-linked, whereas Static exposure is cumulative and embedded within place. This distinction matters because geographical relocation does not necessarily indicate the depth of cultural boundary-crossing. Lauring et al. (2019), for example, found that deeper interaction with host-country nationals was associated with personal development among ATCKs, suggesting that international presence alone does not capture the quality of cultural engagement. Similarly, broader migrant research treats integration and acculturation as processes shaped by interaction across individual, organisational and societal contexts rather than by international movement alone (Hajro et al., 2019).

Prolonged residence in a culturally plural setting may therefore provide an alternative context for identity negotiation. It is evident, therefore, that duration alone is insufficient; geographical continuity must be accompanied by sustained and sufficiently intensive intercultural engagement. Building on the recognition of long-term adult settlement within the TCA concept (Benuyenah & Mustafa, 2024), the Static pathway specifies how cultural encounters may accumulate within place, rather than principally through movement across places. Static therefore denotes geographical anchoring, not cultural immobility.

3. Theorising Nomadic and Static Third Culture Adults

3.1 The Nomadic Third Culture Adult

The Nomadic Third Culture Adult represents the pathway most closely aligned with established third-culture literature (Thomas et al., 2021; Walters & Auton-Cuff, 2009). Its defining feature is not international experience itself, but recurrent geographical relocation through which encounters with different cultural settings become recurring features of the life course. Kwon (2019), for example, found that repeated shifts in location, culture and language remained closely connected to adult identity, while Colomer (2020) describes international mobility during childhood as both a recurrent way of life and an identity marker. The Nomadic TCA retains this established association but treats repeated mobility as one pathway, rather than an implicit requirement, for third-culture identity.

Cultural exposure within this pathway is episodic and substantially renewed as the individual moves between settings (Hisano, 2015). Relocation itself, however, does not necessarily produce identity development. Lauring et al. (2019), studying 424 business expatriates, found that deeper interaction with host-country nationals was important for ATCK personal development. The Nomadic pathway should therefore not be reduced to a count of countries or relocations: movement provides the spatial structure within which cultural encounters occur, while their identity consequences depend on engagement with the cultural environments through which the individual moves. The mechanism proposed here is consequently recurrent adaptation, through which successive cultural transitions repeatedly occasion identity negotiation (Sussman, 2002; Kwon, 2019).

3.2 The Static Third Culture Adult

By contrast, the Static Third Culture Adult represents a different pathway (See Table 1 & Figure 1). Static does not imply cultural immobility or the complete absence of international movement. Rather, it denotes relative geographical continuity in which an individual remains substantially anchored in one host country while experiencing sustained cultural plurality. Benuyenah and Mustafa (2024) provide the conceptual starting point by extending third-culture identity to long-term expatriates and adult immigrants whose experiences develop through prolonged residence outside their country of origin. The Static TCA develops this further by requiring not simply residence, but recurring and sufficiently meaningful engagement with cultural difference such that identity is negotiated beyond an individual's first culture and any singular conception of the host culture.

This pathway becomes particularly plausible in culturally heterogeneous environments where geographical continuity does not imply cultural continuity. Research on super-diversity demonstrates that migrant-receiving societies may contain complex configurations of national origin, language, migration status and other forms of difference within the same geographical space (Vertovec, 2007). Doucerain et al. (2024) similarly show that migrants in super-diverse settings form relationships not only with a host majority but with individuals from multiple other cultural backgrounds, with implications for acculturation and identification. A geographically anchored adult may therefore experience considerable cultural heterogeneity through work, friendship, family and other social environments without successive international relocation.

The Static TCA should consequently not be equated with long-term expatriation. What distinguishes the pathway is the combination of geographical anchoring, prolonged cultural plurality and repeated intercultural engagement through which cultural difference becomes consequential for identity. Unlike Nomadic TCAs, whose encounters are substantially organised around successive relocations, Static TCAs encounter cultural plurality cumulatively within a relatively continuous geographical setting. Its proposed mechanism is therefore cumulative cultural negotiation. Accordingly, two contrasting biographies can be used illustrate the distinction between the two pathways.

Illustrative biographies

> ***(A) Nomadic TCA.*** *Ana has lived and worked in four countries over 18 years. Each relocation has brought different social expectations, workplace practices and cultural relationships, requiring adjustment in how she relates to each setting. Her third-culture experience has accumulated largely across places.*
>
> ***(B) Static TCA.*** *Samir has lived in the UAE for 20 years. Although geographically anchored, his work and social life routinely bring him into close contact with people from different national, linguistic and cultural backgrounds. His third-culture experience has accumulated largely within place.*

The pathways are analytically distinct rather than mutually exclusive across the life course. Their principal distinction lies in how culturally consequential exposure is configured: across places through recurrent relocation for the Nomadic TCA, and within place through cumulative cultural exposure for the Static TCA.

4. Mechanisms of Nomadic and Static TCA Identity Development

The preceding distinction establishes two pathways through which culturally consequential experience may accumulate: across places through recurrent relocation, or within place through sustained cultural plurality under geographical anchoring. **The theoretical distinction, however, rests not simply on where cultural encounters occur, but on how those encounters become consequential for identity.** For the Nomadic TCA, the proposed mechanism is recurrent adaptation. Successive relocations interrupt geographical and cultural continuity and expose individuals to changing social expectations, relationships and cultural environments. TCK and ATCK research provides a basis for this mechanism through its emphasis on cross-cultural transition, adaptation and continuing identity negotiation (Kwon, 2019; Hartman, 2022).

For the Static TCA, the proposed mechanism is cumulative cultural negotiation. In this scenario, geographical interruption is unnecessary. Culturally different encounters accumulate within place and may progressively require negotiation of different cultural expectations and orientations. This draws on research showing that cultural and identity adaptation may develop through sustained engagement within a host environment (Berry, 1997; Hajro et al., 2019) and that multiple cultural orientations may become incorporated within the self in different ways (Benet-Martínez & Haritatos, 2005). The distinction is therefore one of process: recurrent adaptation across places versus cumulative cultural negotiation within place.

Figure 1 brings these pathways and their respective mechanisms together within the proposed dual-pathway theory of TCA identity.

NOMADIC TCA PATHWAY		**STATIC TCA PATHWAY**
Repeated international relocation		Sustained geographical anchoring + Prolonged/intensive exposure to cultural plurality
↓		↓
Episodic/recurrent cultural exposure		Cumulative/prolonged cultural exposure
↓		↓
Recurrent adaptation		Cumulative cultural negotiation
↓		↓
Identity negotiation		Identity negotiation
↘	THIRD CULTURE ADULT IDENTITY	↙

(Boundary condition: Cultural encounters must be sufficiently recurrent or sustained, and consequential for identity negotiation (see Benuyenah & Mustafa, 2024).)

Figure 1: Dual-Pathway Theory of Third Culture Adult Identity

Geographical mobility is thus treated as a context for culturally consequential encounters rather than the underlying mechanism of TCA identity formation.

5. Boundary Conditions and Theoretical Propositions

From the theorisation so far, neither repeated international relocation nor prolonged residence in a culturally plural setting is sufficient to produce TCA identity. In either pathway, cultural encounters must become sufficiently recurrent or sustained, and sufficiently consequential, to occasion continuing identity negotiation.

International relocation can occur with limited engagement beyond bounded expatriate or organisational communities, just as long-term anchoring may involve little meaningful cultural boundary-crossing. The pathways are therefore conditional rather than deterministic (Berry, 1997; Benet-Martínez & Haritatos, 2005; Moore & Barker, 2012).

Proposition 1. TCA identity is more likely to develop when exposure to cultural difference is sufficiently recurrent or sustained to become consequential for identity negotiation, irrespective of whether such exposure accumulates across or within geographical settings. For Nomadic TCAs, repeated relocation creates recurrent cultural transitions, making adaptation and identity negotiation recurring features of the pathway (Tarique & Weisbord, 2013; Kwon, 2019; Sussman, 2002).

Proposition 2. Nomadic TCA identity is more likely to develop when repeated international relocation creates recurrent cultural transitions that require adaptation and identity renegotiation. For Static TCAs, geographical continuity must instead be accompanied by prolonged and sufficiently intensive engagement with cultural plurality. Cultural difference must become a recurring and consequential feature of work, social or relational life (Hajro et al., 2019).

Proposition 3. Static TCA identity is more likely to develop when sustained geographical anchoring is accompanied by prolonged, intensive engagement with cultural plurality that requires ongoing identity negotiation. The proposition therefore locates the Static pathway not in geographical stability itself, but in the cumulative cultural negotiation that may occur within it.

6. Discussion and Theoretical Contributions

The dual-pathway theory makes three contributions. First, it reconsiders the explanatory status of geographical mobility. TCK and ATCK research has generated substantial insight into internationally mobile lives (Tan et al., 2021; Jones et al., 2022), but has also positioned repeated movement near the conceptual centre of third-culture experience. The present theory retains international relocation as an important pathway while treating it as one spatial-temporal configuration through which culturally consequential encounters may arise rather than as a necessary condition.

Second, the theory introduces pathway heterogeneity. Building on the broader TCA construct (Benuyenah & Mustafa, 2024), it distinguishes a Nomadic route shaped by recurrent relocation and cultural transition from a Static route in which prolonged cultural plurality accumulates under geographical anchoring. This moves TCA theory from identifying who may develop third-culture identity towards explaining how different configurations of cultural experience may contribute to its development.

Third, the theory shifts explanation from mobility status towards process. Recurrent adaptation and cumulative cultural negotiation locate the distinction in how cultural experience is organised over time and across geographical settings rather than simply in movement or stability. TCA theorising is thereby moved towards a process-centred explanation concerned with how culturally consequential encounters are organised, accumulated and incorporated into identity.

7. Research Agenda

The dual-pathway theory requires empirical examination across populations with different mobility histories. Research should test whether Nomadic and Static TCAs can be distinguished by the spatial and temporal organisation of cultural exposure rather than simply by countries lived in or duration of residence. For Static TCAs, duration should be distinguished from the intensity and diversity of intercultural engagement; for Nomadic TCAs, relocation frequency should be distinguished from the depth of engagement within each setting. Longitudinal and life-history designs would be particularly useful, including comparisons between individuals with different mobility histories but similar levels of sustained cultural engagement.

The pathways may also change across the life course. Future research should examine transitions between Nomadic and Static pathways, including whether mechanisms associated with earlier mobility persist after geographical settlement. Such research would establish whether the pathways operate independently, sequentially or in combination.

8. Conclusion

This paper develops a dual-pathway account of TCA identity in which culturally consequential experience may accumulate across places, through recurrent relocation and adaptation, or within place, through geographical

anchoring and cumulative cultural negotiation. Its central theoretical move is to separate geographical movement from cultural boundary-crossing. Mobility remains an important context for third-culture experience but is repositioned as one pathway rather than its defining condition. This allows TCA theory to account for individuals whose identities are shaped through sustained cultural plurality without repeated international relocation, while preserving the significance of mobility established within TCK and ATCK scholarship.

Ethics Declaration: Ethical clearance was not required for this study as the paper is conceptual and did not involve human participants or the collection of primary data.

AI Declaration: Except for limited editorial assistance and preliminary drafting using ChatGPT (OpenAI), the manuscript was independently developed by the author. All AI-assisted text was critically reviewed and substantially revised, with no reliance on AI for the scholarly arguments, analysis or conclusions. The author takes full responsibility for the final manuscript.

References

Benet-Martínez, V., & Haritatos, J. (2005). Bicultural Identity Integration (BII): Components and psychosocial antecedents. Journal of Personality, 73(4), 1015–1050. https://doi.org/10.1111/j.1467-6494.2005.00337.x

Benuyenah, V., & Mustafa, M. (2024). Conceptualising the identity of Third Culture Adults (TCAs) in the GCC: Implications for labour markets and organisations. National Identities, 26(3), 223–236. https://doi.org/10.1080/14608944.2024.2346309

Berry, J. W. (1997). Immigration, acculturation, and adaptation. Applied Psychology, 46(1), 5–34. https://doi.org/10.1111/j.1464-0597.1997.tb01087.x

Colomer, L. (2020). Feeling like at home in airports: Experiences, memories and affects of placeness among Third Culture Kids. Applied Mobilities, 5(2), 155–170. https://doi.org/10.1080/23800127.2018.1436636

de Waal, M. F., & Born, M. P. (2021). Where I'm from? Third Culture Kids about their cultural identity shifts and belonging. International Journal of Intercultural Relations, 83, 67–83. https://doi.org/10.1016/j.ijintrel.2021.04.004

Doucerain, M. M., Medvetskaya, A., Benkirane, S., Bragoli-Barzan, L., & Gouin, J.-P. (2024). Mainstream acculturation in superdiverse settings: The beneficial role of intergroup contact with 'other-cultures' individuals. European Journal of Social Psychology, 54(4), 971–988. https://doi.org/10.1002/ejsp.3061

Fail, H., Thompson, J., & Walker, G. (2004). Belonging, identity and Third Culture Kids: Life histories of former international school students. Journal of Research in International Education, 3(3), 319–338. https://doi.org/10.1177/1475240904047358

Greenholtz, J., & Kim, J. (2009). The cultural hybridity of Lena: A multi-method case study of a third culture kid. International Journal of Intercultural Relations, 33(5), 391–398. https://doi.org/10.1016/j.ijintrel.2009.05.004

Grimshaw, T., & Sears, C. (2008). 'Where am I from?' 'Where do I belong?': The negotiation and maintenance of identity by international school students. Journal of Research in International Education, 7(3), 259–278. https://doi.org/10.1177/1475240908096483

Hajro, A., Stahl, G. K., Clegg, C. C., & Lazarova, M. B. (2019). Acculturation, coping, and integration success of international skilled migrants: An integrative review and multilevel framework. Human Resource Management Journal, 29(3), 328–352. https://doi.org/10.1111/1748-8583.12233

Hartman, C. J. (2022). Adult third culture kids: Impacts on adult lives of living internationally and attending boarding school. International Journal of Intercultural Relations, 86, 122–133. https://doi.org/10.1016/j.ijintrel.2021.11.007

Hisano, Y. (2015). The narratives of adult third culture kids: Cultural identity development and psychological support upon reentry to one's home country [Master's thesis, Smith College]. Smith ScholarWorks. https://scholarworks.smith.edu/theses/687/

Jones, E. M., Reed, M., Gaab, J., & Ooi, Y. P. (2022). Adjustment in third culture kids: A systematic review of literature. Frontiers in Psychology, 13, 939044. https://doi.org/10.3389/fpsyg.2022.939044

Kwon, J. (2019). Third Culture Kids: Growing up with mobility and cross-cultural transitions. Diaspora, Indigenous, and Minority Education, 13(2), 113–122. https://doi.org/10.1080/15595692.2018.1490718

Lauring, J., Guttormsen, D. S. A., & McNulty, Y. (2019). Adult third culture kids: Adjustment and personal development. Cross Cultural & Strategic Management, 26(3), 387–400. https://doi.org/10.1108/CCSM-02-2019-0035

Moore, A. M., & Barker, G. G. (2012). Confused or multicultural: Third culture individuals' cultural identity. International Journal of Intercultural Relations, 36(4), 553–562. https://doi.org/10.1016/j.ijintrel.2011.11.002

Pollock, D. C., Van Reken, R. E., & Pollock, M. V. (2017). Third culture kids: Growing up among worlds (3rd ed.). Nicholas Brealey Publishing.

Sussman, N. M. (2002). Testing the cultural identity model of the cultural transition cycle: Sojourners return home. International Journal of Intercultural Relations, 26(4), 391–408. https://doi.org/10.1016/S0147-1767(02)00013-5

Tan, E. C., Wang, K. T., & Cottrell, A. B. (2021). A systematic review of third culture kids empirical research. International Journal of Intercultural Relations, 82, 81–98. https://doi.org/10.1016/j.ijintrel.2021.03.002

Tarique, I., & Weisbord, E. (2013). Antecedents of dynamic cross-cultural competence in adult third culture kids (ATCKs). Journal of Global Mobility, 1(2), 139–160. https://doi.org/10.1108/JGM-12-2012-0021

Thomas, J., Humeidan, M., Barrack, C., & Huffman, K. L. (2021). Mindfulness, stress reactivity, and depressive symptoms among "Third Culture Kids" in the United Arab Emirates. Journal of Cross-Cultural Psychology, 52(2), 192–208. https://doi.org/10.1177/0022022120987620

Useem, J., Useem, R. H., & Donoghue, J. D. (1963). Men in the middle of the third culture: The roles of American and non-Western people in cross-cultural administration. Human Organization, 22(3), 169–179. https://doi.org/10.17730/humo.22.3.5470n44338kk6733

Vertovec, S. (2007). Super-diversity and its implications. Ethnic and Racial Studies, 30(6), 1024–1054. https://doi.org/10.1080/01419870701599465

Walters, K. A., & Auton-Cuff, F. P. (2009). A story to tell: The identity development of women growing up as third culture kids. Mental Health, Religion & Culture, 12(7), 755–772. https://doi.org/10.1080/13674670903029153

Whetten, D. A. (1989). What constitutes a theoretical contribution? Academy of Management Review, 14(4), 490–495. https://doi.org/10.5465/amr.1989.4308371

Zikic, J., Bonache, J., & Cerdin, J.-L. (2010). Crossing national boundaries: A typology of qualified immigrants' career orientations. Journal of Organizational Behavior, 31(5), 667–686. https://doi.org/10.1002/job.705

Beyond Project Delivery: Reimagining Aid Governance for Sustainable Community Development in Nigeria

Paul Chibuike Ezebuilo, Daniel Eseme Gberevbie, Ugochukwu David Abasilim and Celestina Ekene Chukwudi

Department of Political Science and International Relations, Covenant University, Ota, Ogun State, Nigeria

paul.ezebuilo@covenantuniversity.edu.ng (Corresponding author)
daniel.gberevbie@covenantuniversity.edu.ng;
ugochukwu.abasilim@covenantuniversity.edu.ng
celestina.chukwudi@covenantuniversity.edu.ng

Abstract: The uncertainty surrounding foreign-assisted projects and programmes, despite the influx of development aid, stems from governance and institutional policies, which have undermined efforts to achieve sustainable development in developing countries like Nigeria. World Bank-assisted projects have played a significant role in achieving sustainable community development in areas such as healthcare services, education, infrastructure, social services, and poverty alleviation. The benefits of foreign aid have been influenced by unfavourable policies, resulting in the discontinuity of projects and programmes after donor exit. This study examines how foreign aid governance can be reinvented through World Bank-assisted projects and programmes, thereby providing a framework to improve the efficiency and effectiveness of foreign aid in achieving sustainable community development. Good Governance Theory (GGT) was adopted as the theoretical framework, focusing on the basic principles of transparency, accountability, responsiveness, participation, and institutional effectiveness. The study employed a qualitative research design, drawing on secondary data from government policy documents, World Bank project reports, and academic journals on foreign-aided projects and programmes, and analysed the collected data thematically. Findings revealed that sustainable community development outcomes are driven by good institutional mechanisms, inclusive participation, effective resource management, inter-agency collaboration, and that the lack of these inhibits the sustainability of community projects. The study contributes to the achievement of Sustainable Development Goals (SDGs) 16 and 17 by strengthening local governance institutions and policies, and institutionalising community partnership and participation across the phases of community projects and programmes. Thus, enhancing transparency and accountability mechanisms, and ensuring policy continuity among political administrators. The study concludes that sustainable community development should prioritise good governance and local ownership, rather than merely meeting project and programme implementation targets. The study recommends that the government, development agencies, and international organisations adopt a governance-based framework for the design, implementation, monitoring, and evaluation of foreign-aided projects to ensure sustainable community development.

Keywords: Aid governance, Community development, Sustainable development, World Bank-assisted projects, Nigeria

1. Introduction

Aid to developing countries is perceived as a legitimate need, as external funding, in case of proper administration and utilisation, which can accelerate investments into development hubs, helps vulnerable communities and poor citizens overcome poverty, and creates strong institutions and structures that would allow local communities to take ownership and care of the development projects and programmes (Habermas, 2023). Foreign aid financing is often channelled to nations with weak leadership and governance structures, resulting in a large share of aid funds being mismanaged or misappropriated. Despite some contributions from foreign aid in sectors such as health, education, and infrastructure, it has not advanced sustainable community development. According to Jega and Garba (2025), these challenges include institutional weakness, policy misalignment, and donor conditionalities that do not transfer control of the project to local communities.

Foreign aid has been an integral part of Nigeria's developmental narrative since independence. Concessional loans, grants, and technical assistance from multilateral and bilateral organisations have been utilised to fill gaps and weaknesses in important sectors such as health, education, water, energy, and social infrastructure (Molokwu et al., 2022). As one of Africa's largest economies, Nigeria has become a major target for the international donor community, receiving aid from the World Bank, the African Development Bank, USAID, the Commonwealth Development Corporation, and the United Nations (UN) agencies (World Bank, 2021).

Since Nigeria joined the World Bank in 1961, the World Bank has been one of the leading development partners active in the country, having extended concessional loans through the International Development Association (IDA) and the International Bank for Reconstruction and Development (IBRD). The World Bank has assisted Nigeria through various programmes such as the FADAMA I, II, III, Community and Social Development

Projects (CSDPs), NG-CARES, the deployment of mini-grids and solar home systems, which brought electricity coverage to over 5.5 million Nigerians and created thousands of local employment opportunities between 2018 and 2024 (World Bank, 2025).

The challenges of the sustainable development trajectory are that donor-financed projects, such as World Bank projects, do a reasonably good job. Meanwhile, supervision, technical aid and funds are ongoing, with experience showing a drop in activity when donors leave, and local institutions and communities take over. Infrastructure deteriorates, services become less effective, and community structures set up to provide services become less efficient, undermining the development benefits expected from aid (Asongu and Nwachukwu, 2019). It has been associated with low institutional ownership, poor handover planning, inadequate local financial and technical capacity, corruption, and governance architecture focused on disbursement and project delivery rather than long-term systems to achieve outcomes (Chinnah, 2025). This study fills that gap by shifting the analysis beyond project delivery to the governance structure that supports sustainability. Thus, against this backdrop, the general objective of this study is to investigate the administration of aid governance on achieving sustainable community development beyond project delivery following the donor's exit in Nigeria, while the specific objectives are to:

- Ascertain the influence of aid governance practices on sustainable community development outcomes in Nigeria.
- Explore approaches for reimagining aid governance beyond project delivery to achieve sustainable development initiatives in Nigeria.
- Identify the institutional challenges affecting aid governance towards achieving sustainable community development initiative outcomes in Nigeria.

2. Literature Review

Foreign Aid and Community Development

Foreign aid is a double-edged sword which enables development but also feeds dependency. The authors believe that while aid can help build institutional capacity, boost economic growth, and contribute to overall development goals, the drawbacks of weak domestic governance systems, donor conditionalities, and geopolitical considerations undermine its effectiveness (Asongu and Nwachukwu, 2019). Foreign aid can improve institutional capacity, stimulate economic growth, and contribute to overall development. The negative effects of weak domestic governance systems, donor conditionalities, and geopolitical considerations weaken the effectiveness of aid, and these issues provide a framework for evaluation (Fagge, 2022). Foreign-aided development projects have long been seen as vehicles to bridge the financing, technical, and infrastructural deficits that hinder community development in low- and middle-income countries (Chukwudi and Owoh, 2024).

The amount of money being donated to African economies with poor governance and weak institutional leadership remains significant (Abasilim, Gberevbie and Osibanjo, 2019). The quantity of aid and the quality of recipient institutions are often misaligned, causing donor money to fail to reach or benefit the intended recipients (Jega and Garba, 2025). In Nigeria, foreign aid has helped bring about clear improvements in several areas, including health, education, water supply, and physical infrastructure. The overall effectiveness is still hampered by a lack of institutional development, a lack of coherence between recipient-country policies and their donor counterparts, and the imposition of conditions by donor countries that limit recipient communities' ability to adapt projects to local realities (Jambadu, Monstadt and Pilo, 2024).

In addition to its developmental functions, foreign aid has been an instrument of soft power and diplomacy for donor states, enabling project selection and design to be based not only on recipient communities' needs but also on the strategic objectives of donor states and organisations. The donors, organisations, and institutions deliberately distribute their aid through non-governmental organisations (NGOs) rather than governments, as in certain cases, governments are perceived to have poor governance and inadequate institutional structures to administer and utilise the aid funds released to them. Therefore, making the diversion of aid funds possible, as using NGOs would reduce the risk of such diversion (Moyo, 2009).

Aid Governance and Project Sustainability.

Overdependence on aid may lead to poor governance and weak institutions. Excessive dependence on and use of aid may undermine governments' accountability and transparency by altering the financial linkages between taxation and the provision of public goods, thereby reducing people's incentives to demand accountability,

transparency, efficiency, and effectiveness from their institutions (Gberevbie, Oyeyemi, and Nchekwube, 2014). Projects and programmes funded by donor institutions or organisations have created an ad hoc implementation mechanism, with many administrative systems and additional reporting obligations, thus placing a burden on fragile institutional systems. Over-dependency can also affect a country's institutional policies, leading to a coincidence of agendas between donor and development priorities. The Nigerian experience has demonstrated that poor performance in international governance rankings, such as the CPI and IAI indices, poses a danger to development performance and to public confidence in institutions that facilitate development driven by foreign aid (UNDP, 2023). This implies that governance gaps are not a sideshow to the provision of aid but are a constraint on the realisation of sustainable community benefits from aid projects.

Experience in the health sector indicates that sustained post-donor-funding operations of a programme depend on the government and the community's active involvement in programme design and management, as well as on a genuine commitment to investing in the programme in the long term and a shared vision of the programme being supported (Casimiro et al, 2024). Stakeholder engagement research on community development-funded projects reveals parallels: Participation in isolation is ineffective for sustainability unless it is structured, meaningful, and immune to elite capture (Oduor, Lango, and Karuu, 2025). The experience outlined in this body of work suggests that stakeholder involvement should be treated as a governance process intentionally designed and resourced, rather than as a formal process during implementation.

Institutional capacity building, continuity, and policies have been considered important yet often-overlooked post-donor sustainability factors. Most unsuccessful community development projects are externally driven interventions introduced without adequate adaptation to local institutional and political contexts. Institutions that can learn from their experiences through continuous monitoring, evaluation, and adaptive planning will be needed to sustain community engagement (Hart, 2023). The broader policy framework in Nigeria exacerbates this, as development paths have performed poorly, partly due to policy discontinuity between successive administrations, in which projects are passed on from one administration to the next and are either deprioritised or forgotten, leading to the accumulation of thousands of abandoned public projects nationwide. To tackle the trend, the need for binding national development planning frameworks that make the government accountable for maintaining policy continuity has been argued (Adekalu, 2017).

The World Bank-Assisted Projects in Nigeria

The World Bank has been the most noted and consistent external development partner in Nigeria, making disbursements of funds through concessional credits and grants through the International Development Association (IDA) and the International Bank for Reconstruction and Development (IBRD). Currently, the Community and Social Development Projects (CSDPs) are ongoing, and the NG-CARES project and programmes are being undertaken by the Community and Social Development Agency (CSDA) in collaboration with the World Bank (World Bank, 2024). The development project method engages local communities in the decision-making process, giving them the power to select priority projects such as health, education, and infrastructure (water, roads, rural electricity), among other social infrastructure, to achieve the desired result (Obinna and Nnamdi, 2020).

Infrastructure development in rural areas under the CSD project, funded by the World Bank, includes the construction of health and education facilities, roads, rural electrification, and water supply systems, thereby supporting sustainable community development (Adegboye and Olaniyi, 2021). The FADAMA I, II, and III projects have been deliberately structured to encourage grassroots involvement in project identification, planning, and implementation (World Bank, 2023). The goal of these programs is to enable the local communities to identify needs and, by doing so, act. The FADAMA III agricultural project across states in Nigeria focuses on economic and infrastructural contributions to community development, supported by effective expenditure control, inclusive participation, and increased agricultural productivity and income levels among farmers (World Bank, 2021).

World Bank approved a USD 750 million credit for the Distributed Access through Renewable Energy Scale-up (DARES) programme to provide electricity services to more than 17.5 million Nigerians who were previously unserved or underserved by mini-grid services and standalone solar systems (World Bank, 2023). The latter followed the earlier Nigeria Electrification Project (2018-2024), which supported the deployment of 125 mini-grids, providing electricity access to more than 5.5 million Nigerians and, consequently, generating thousands of jobs nationwide (World Bank, 2025). The Bank also approved a 1.57-billion-dollar financing package comprising three connected operations: the HOPE-GOV programme to address governance issues in financial and human-resource management, which impede education and health service delivery; the HOPE-PHC

programme, which aims to strengthen primary healthcare (PHC) for the more than 40 million Nigerians; and the Sustainable Power and Irrigation for Nigeria (SPIN) project, designed to create climate resilience through improved dam safety and irrigation systems (World Bank, 2024; Ibeawuchi, Okwara and Okangba, 2023).

Theoretical Framework

This study is underpinned by Good Governance Theory (GGT), which was developed and popularised by the World Bank and other multilateral development institutions since the early 1990s, when it was recognised that development aid to countries with poor institutions was often counterproductive. The World Bank describes good governance in terms of traditions and institutions by which authority is exercised in a country; how governments and public bodies are selected and held to account; the ability of institutions to develop and apply effective policies; and how citizens and the state value the institutions that govern their relationships (Harrison, 2005; Ekundayo, 2017; UNODC, n.d.).

According to Good Governance Theory, building the capacity of institutions that receive, manage, and sustain development resources is more important than the amount of financial or technical resources. Some key principles of the framework include the rule of law, transparency, accountability, participation, responsiveness, effectiveness and efficiency, equity, and consensus orientation (Uddin and Ashrafun, 2007; Andrew, 2008). These principles have been integrated into the Bank's Theory of Change (ToC) as a vital element for the sustainability of the projects it supports, and now as a safeguard measure, rather than a peripheral activity, of good governance reform (Björk and Johansson, 2001; Peter, 2010).

The sustainability of World Bank projects in Nigeria is explored using the analytical framework of Good Governance Theory, which is utilised beyond project delivery. The theory is not about disbursement, construction or service roll-out as indicators of success, but how the governance framework of each project, including transparent financial management, accountable implementing structures, meaningful involvement of communities, responsive institutional design, and effective, policy-continuous local institutions, is strong enough to ensure sustainability of outcomes after donor supervision and funding ends. This framing takes the study beyond a project-management focus on what went wrong and into a governance focus on why sustainability is often lost after donors leave. It offers recommendations to enhance the institutional environment for sustainable community development in Nigeria.

3. Methodology

This study employed a qualitative documentary research design, which is appropriate for a topic that requires tracing governance practices across foreign-aided project programme documents and independent literature. The secondary data were sourced from the World Bank, UNDP, international organisations, the Community and Social Development Project Agency, NG-CARES, FADAMA, the Nigeria Electrification Project/DARES, and HOPE-GOV/HOPE-PHC/SPIN project appraisal and implementation reports. These programmes were selected as the largest, documented, multi-sectoral World Bank interventions in Nigeria since 2015. The selected documents were used because they focused on Nigeria and were compared with evidence from Sub-Saharan Africa, addressing aid governance related to World Bank programmes. Nineteen (19) peer-reviewed articles were used, fourteen (14) World Bank and United Nations documents, five (5) Nigerian government policy documents and three (3) governance index reports. The collected data were open coded according to the principles of good governance theory (institutional capacity, participation, transparency/accountability, policy continuity, coordination), grouped and analysed thematically according to the objectives, and mapped programme by programme. This methodology is widely accepted in qualitative research. The researcher has chosen to use it because it is widely used in qualitative research, especially in studies examining institutional and policy documents.

4. Results and Discussions

Governance Practices and Sustainable Development Outcomes

The results show that the longer assisted community projects remain in place in Nigeria, the more dependent these projects are on the governance mechanisms used to manage resources rather than on the number of resources made available. The involvement of stakeholders proved to be a predictor of the post-implementation performance. Community engagement frameworks should be more than symbolic. They should mobilise communities as partners in the development agenda, as building community engagement frameworks is an instrument for achieving sustainable outcomes, not an outcome (Ogunde, 2025). Delays and cost overruns were linked to effective resource management, with transparent budgeting and disciplined

financial tracking. Correlated effective resource management with fewer delays and cost overruns, which included transparent budgeting and disciplined financial tracking (Hart, 2024).

Plans for institutional capacity building and training of personnel, functional administrative systems, and adequate logistics at the implementing agency level also positively influenced project survival as they transitioned from donor-funded delivery to locally managed operations. The effectiveness of externally funded programmes in achieving lasting changes depends on the credibility of governance institutions, as weak absorptive capacity limits the realisation of aid benefits in terms of lasting institutional outcomes (Maekawa, 2024).

Inter-agency cooperation among government ministries, donors, and community structures eliminated duplication of effort and created greater coherence in service provision. The lack of such cooperation led to overlapping services, weakening accountability. Where systems of monitoring and evaluation were in place, they raised awareness of implementation issues. In Nigeria, it is often neither timely nor institutionally coordinated to facilitate adaptive planning; the projects reviewed had monitoring and evaluation mainly focused on donor rather than local learning priorities (Ogunbode, 2025). This implies that aid effectiveness in terms of outputs and project results should give way to a governance framework within which projects operate, one that critically examines the influence of foreign aid volumes on sustainable development outcomes (Fentahun, 2023).

Reimagining Aid Governance Beyond Project Delivery

There is a need to move from a project-delivery approach to a governance-based approach that emphasises outcome sustainability and the sustaining of institutional structures to ensure sustainable community development in Nigeria (Edih and Ndudi, 2025). The quality of governance should serve as a guideline for the basic principles of effective aid towards achieving sustainable community development, including institutional capacity, participatory legitimacy, transparency, and policy consistency, with quality of governance as an end goal rather than simply a condition for successful project and programme implementation. Institutional capacity building for local community leaders should not only occur during the intensive delivery period but also begin at the project design phase, including technical and administrative capacity building and operational funds to ensure that institutional efforts and support will survive after the donor exits (Bukar, Hindatu and Umar, 2025).

Institutionalising local community participation and partnership by initiating community project management committees (CPMCs) with their mandate, budgeting for maintenance and contract commitments for assessing responsibilities after the end of the project and programme. Therefore, it is not goodwill that enables community engagement over the long haul, but institutional structures (Hart, 2024). Strengthening transparency and accountability by making financial disclosures public, conducting independent social audits, and creating grievance forums can help maintain the trust that underpins community cooperation, which was identified as a corrosive effect of opacity throughout the findings (Edi and Ndudi, 2025).

One of the key challenges in maintaining consistency across administrations is that projects are sensitive to political transitions (Whitty, 2024). Community development programmes can be protected from the disruptive impact of leadership changes through legal and institutional safeguards, binding memoranda of understanding, multi-year budgetary commitments, and statutory domestication of development priorities, all of which help mitigate the dynamics of politicisation (Asongu and Nwachukwu, 2019; Gberevbie et al., 2014). Evidence suggests that improving outcomes in Nigeria's aid sector is a governance issue, not merely a technical or financial one. Reimagining aid governance beyond project delivery means reframing what donors, governments, and implementing partners consider success, instead of the number of facilities built by donor partners at handover, but the extent to which local institutions, communities, and policy environments are left better able to sustain development gains on their own.

Institutional Challenges Affecting Sustainable Community Development in Nigeria

Institutional and structural weaknesses resurface in development projects and programmes with otherwise good governance design. Lack of project and programme continuity, delayed approvals, poor accountability, transparency issues, and inappropriate handover processes were most acute during the transition from a temporary project office to a permanent government structure (Chinnah, 2025).

Political interference and elite capture of project location, staffing, and resource allocation decisions, influenced by patronage rather than technical or community-based need, and leadership transitions marked

by the abandonment of predecessor-linked projects and programmes (Whitty, 2024). Community project maintenance financing is a distinct and under-examined challenge that is lacking in programmes, with a poor maintenance budget line that cannot survive the post-exit period, reflecting a general bias toward funding new construction over asset existence and sustainability (Asongu and Nwachukwu, 2019).

Community partnership, participation, and ownership indicate that communities, especially youth, help select and co-finance projects and programmes, which were reported as more consistently functional post-exit than projects designed and delivered for the benefit of communities (Chukwudi and Owoh, 2024; Ezebuilo et al., 2025). This implies that consultation between donors and development agencies is not a sufficient mechanism for community partnership, participation, and ownership of projects and programmes.

The novel contributions of this study span from the post-project delivery governance sustainability (PPDGS), which explains the good governance theory specifically during donor exit, thus contributing to the exit-point conditions, statutory (not merely administrative) institutional continuity, and co-financing or revenue-linked participation, with binding legal/financial conditionality rather than voluntary participation, coordination, monitoring, and evaluation. This study provides practical evidence that donor organisations, government agencies, and beneficiary communities can apply at the design and appraisal stages of future community-development-driven financing in Nigeria. In a nutshell, this study also contributed to achieving Sustainable Development Goals (SDGs) 16 and 17, with SDG 16 calling for efficient, effective, accountable, transparent, and strong institutions at all levels, and SDG 17 entails effective partnerships among donors, governments, and communities during implementation, to ensure sustainable institutions and structures that would outlast the donor exit.

5. Conclusion and Recommendations

This study investigates how the governance of foreign aid could move beyond the mere implementation of aid projects to achieve sustainable development in Nigerian communities. Though these projects have improved infrastructure, social service provision, poverty reduction, and community livelihoods, their long-term sustainability is hindered by governance and institutional problems following the withdrawal of donor aid. Using the good governance theory and a qualitative assessment of secondary data, the study found that transparency, accountability, stakeholder involvement, institutional capability, resource management, interagency coordination, and monitoring and evaluation are indispensable for achieving sustainable development outcomes. For example, the World Bank-assisted programmes have shown that sustainability after donor exit is not determined by the amount of aid, project design quality, or delivery success, but by whether governance continuity is structurally undermined by statutory institutional ownership, co-financed community participation, and financial conditions before donor exit. The study concludes that sustainable community development entails a transition from a project-based to a governance approach to foreign aid, and that improvements in local governance institutions, the institutionalisation of community participation, transparency, and accountability, and policy continuity must become integral parts of foreign-assisted development programmes. Based on the findings of this study, the following recommendations are made:

- The Federal and State governments should strengthen the existing institutional structures involved in project implementations through good policy reforms to maintain project continuity and cooperation among donor governments, stakeholders, and communities.
- Community participation and partnership should be institutionalised from the onset of the project to the end to foster effective ownership, accountability and transparency.
- Government should ensure adequate project funding with proper financial management, through project monitoring, evaluation, and auditing to enhance accountability in the use of project resources.
- Governance-oriented frameworks should be used to implement foreign-aided projects. At the same time, more resources should be invested in capacity building and institutional development for project and programme sustainability after donor exit.

Acknowledgements

The authors appreciate the Covenant University Centre for Research, Innovation, and Discovery (CUCRID) for supporting this conference.

Ethics Declaration: This study does not require ethical clearance or informed consent from any participant.

AI Declaration: Grammarly was used to correct and proofread this manuscript.

References

Abasilim, U.D., Gberevbie, D.E. and Osibanjo, O.A. (2019) "Leadership styles and employee commitment: Empirical evidence from Nigeria", *SAGE Open*, Vol. 9, No. 3. https://doi.org/10.1177/2158244019866287

Adegboye, T., and Olaniyi, O. (2021) "Impact of Rural Infrastructure Development on Community Well-Being: A Case Study of CSDP Projects in Ogun State." *Journal of Rural Development Studies*, Vol. 15, No. 3, pp. 50–68.

Adekalu, S.O. (2017) "Facilitating community development through institutional engagements" Reflections from 2016 Nigeria IACD conference, Journal of Resource Development and Management 30.

Andrews, M (2008) "The Good Governance Agenda: Beyond Indicators without Theory." *Oxford Development Studies*, Vol. 36, No. 4, pp. 379–407.

Asongu, S. and Nwachukwu, J. (2019) "Foreign aid and governance in Africa", *Politics and Policy*, Vol. 51, No. 4, pp. 614.

Björk, P.G. and Johansson, H.S.H. (2001). Towards Governance Theory: In Search for a Common Ground. Björk-Johnson 2001.IPSA.http://unoacademia.ch/webdav/site/development/shard/development/mdv/sutienauxcours0809/E721governance/2.1

Bukar, A. M., Hindatu, A., and Umar, S. (2025) "Good governance is a key driver for sustainable development, peace, and security in Nigeria" *Kashiere Journal of Politics and International Relations,* Vol. 3, No. 3, pp. 350–359.

Casimiro, A., Cane, R.M., Andrade, M.J., Varandas, L. and Craveiro, I. (2024) "Is the Official Development Assistance in Guinea-Bissau 'emergency' or 'indispensable'? Perceptions of key stakeholders in the healthcare sector. *MedRxiv.* https://doi.org/10.1101/2024.12.03.24318428

Chinnah, P. C. (2025) "Governance, weak institutions and sustainable development in Nigeria: a critical review" Journal *of Political Science and Leadership Research*, Vol. 11, No. 8, pp.130–142.

Chukwudi, C.E. and Owoh, E.E. (2024) "Bolstering the impact of town unions' administration and community development initiatives in Igboland: A study of APU in the Awgbu Community of Anambra State, Nigeria*" African Renaissance*, Vol. 21, No. 1, pp. 299–322.

Edih, U.O. and Ndudi, E.F. (2025) "Good Governance Strategies for Sustainable Development in Nigeria: A Comparative Study" *DELSU Journal of Management Sciences,* Vol. 7, No. 2, pp. 1–13.

Ekundayo, W.E. (2017) "Good Governance Theory and the Quest for Good Governance in Nigeria" *International Journal of Humanities and Social Science,* Vol. 7, No. 5, pp. 154–161.

Ezebuilo, P.C., Chukwudi, C.E., Obiora, C.A. and Ofuonye, J.N. (2025) "Youth empowerment and sustainable development: An assessment of the 'One Youth-Two Skills' scheme in Anambra State, Nigeria" *Ianna Journal of Interdisciplinary Studies,* Vol. 7, No. 2, pp. 685–699.

Fagge, K.S. (2022) "Foreign aid and economic growth: Empirical evidence from Nigeria" *Asian Online Journal Publishing Group*, Vol. 7, No. 1, pp. 35-50

Fentahun, G. (2023) "Foreign aid in the post-colonial Africa: means for building democracy or ensuring Western domination?" *Cogent Social Sciences,* Vol. 9, No.1, 2241257. https://doi.org/10.1080/23311886.2023.2241257

Gberevbie, D., Oyeyemi, A., and Nchekwube, E.-O. (2014) "The Challenges of Good Governance, Accountability of Governmental Agencies and Development in Nigeria" *ACTA UNIVERSITATIS DANUBIUS*, Vol. 6, pp. 80–97.

Habermas, T. (2023) "Sponsoring Democracy: The United States and Democracy Aid to the Developing World, 1988–2001" *International Studies Quarterly*, Vol. 55, No. 1, pp. 47–69.

Harrison, G. (2005) "The World Bank, Governance and Theories of Political Action in Africa" *British Journal of Politics and International Relations,* Vol. 7, No. 2, pp. 240–60.

Hart, A.O. (2023) "An empirical research on traditional institutions, multinational corporation and community development in Bonny Local Government Area (1996-2018). *British Journal of Humanities and Social Sciences*, Vol. 26, No. 1, pp. 23–55.

Hart, A.O. (2024) "Institutional framework for sustainable community engagement for development in Nigeria" *Journal of Humanities and Social Policy,* Vol. 10, No. 2, pp. 14–37.

Ibeawuchi, E., Okwara, I. and Okangba, S. (2023) "Models for the Sustainability of World Bank-Assisted Development Projects in Nigeria" *Innovations*, Vol. 71, pp. 120–136.

Jambadu, L., Monstadt, J. and Pilo, F. (2024) "The politics of tied aid", *World Development*, pp. 175, 106476.

Jega, A.A. and Garba, D. (2025) "United States Foreign Aid and Political Development in Nigeria: Strengthening Democracy and Capacity Building for Civil Societies" *Journal of Xi'an Shiyou University, Natural Science Edition*, Vol. 21, No. 5, pp. 214–236.

Maekawa, W. (2024) "United Nations peacekeeping operations and multilateral foreign aid: credibility of good governance" *World Development,* Vol. 176, No. 21, 06531. https://doi.org/10.1016/j.worlddev.2024.106531

Mo Ibrahim Foundation (2025) Demystifying Africa's dependence on foreign countries. https://mo.ibrahim.foundation/news/2025/demystifying-africas-dependence-foreign-aid

Molokwu, U.C., Chime, V.O., Akalonu, V., Alozie, A.U., Chukwudi, F.J., Ososhepoh, E.S., Nwose, C. and Ewa, O.O. (2022) "Official development assistance and the third world's debt crisis: implications for Nigeria's educational development, 1980–2015" *Cogent Arts and Humanities*, Vol. 9, No. 1, pp.1–10.

Moyo, D. (2009) "Dead aid: Why aid is not working and how there is another way for Africa." London: Penguin Books.

Obinna, J., and Nnamdi, K. (2020) "Education and Social Development in Rural Nigeria: Empirical Evidence from CSDP-Supported Schools" *International Journal of Educational Development*, Vol. 29, No. 4, pp. 123–138.

Oduor, S.H., Lango, B. and Karuu, R.N. (2025) "The power of stakeholder involvement in national government constituency development-funded education projects in Ugunja Constituency, Kenya" *Journal of Research Innovation and Implications*, Vol. 9, No.3, pp. 890–902.

Ogunbode, T.O. (2025) "A nine-year critical review of progress and future strategies for Sustainable Development Goal 6 in Nigeria from 2016 to 2024" *Discover Sustainability*, Vol. 6, 1466. https://doi.org/10.1007/s43621-025-02009-8

Peters, B.G. (2010) "Governance as Political Theory. A Working Paper Presented at Jerusalem Forum on Regulation and Governance, The Hebrew University, Mount Scopus, Jerusalem, Israel. Working Paper No 22.

Uddin, M.J. and Ashrafun, L.J. (2007) "Development Through Good Governance: Lessons for Developing Countries" *Asian Affairs*, Vol. 29, No. 3, 1–28.

UNDP (2023) "Country Programme Document for Nigeria (2023–2027)" New York: UNDP. https://www.undp.org/sites/g/files/zskgke326/files/2023-06/undp_nigeria_cpd_2023-2027

(n.d.) Anti-Corruption Module 2 Key Issues: What is Good Governance? https://www.unodc.org/e4j/fr/anti-corruption/module-2/key-issues/what-is-good-governance.html

Whitty, B.S. (2024) "Dismantling the anti-politics machine in aid: political mētis and its limits" New Political Economy, Vol. 29, No. 5, pp. 804–818.

World Bank (2025) "Expanding Nigeria's mini-grid market" https://www.worldbank.org/en/news/feature/2025/03/07/expanding-nigeria-s-mini-grid-market

World Bank (2023) "Nigeria to expand access to clean energy for 17.5 million people" https://www.worldbank.org/en/news/press-release/2023/12/15/nigeria-to-expand-access-to-clean-energy-for-17-5-million-people.

World Bank (2024) "World Bank approves new financing for Nigeria to improve health outcomes, safety of dams, and irrigation services" https://www.worldbank.org/en/news/press-release/2024/09/26/world-bank-approves-new-financing-for-nigeria-to-improve-health-outcomes-safety-of-dams-and-irrigation-services

World Bank (2025) "Expanding Nigeria's mini grid market" https://www.worldbank.org/en/news/feature/2025/03/07/expanding-nigeria-s-mini-grid-market.

Leadership Effectiveness and Foreign Assistance: Assessing Community-based Infrastructure Sustainability in Southeastern Nigeria

Paul Chibuike Ezebuilo[1], Daniel Eseme Gberevbie[1], Ugochukwu David Abasilim[1] and Arinze Charles Obiora[2]

[1]Department of Political Science and International Relations, Covenant University, Ota, Ogun State, Nigeria

[2]Department of Political Science, Chukwuemeka Odumegwu Ojukwu University, Igbariam, Anambra State, Nigeria

paul.ezebuilo@covenantuniversity.edu.ng (Corresponding author)
daniel.gberevbie@covenantuniversity.edu.ng
ugochukwu.abasilim@covenantuniversity.edu.ng
arinzeobiora2002@yahoo.com

Abstract: Foreign assistance remains a major facilitator of development in developing countries, but its effectiveness is largely conditioned by the quality of leadership that mediates implementation. Effective leadership and governance of foreign assistance within government-established agencies are mandated to achieve sustainable development of community infrastructure. Situated within the development administration and foreign assistance effectiveness discourse, this study investigates how effective leadership shapes the transition of foreign assistance toward achieving community-based infrastructure sustainability in Southeastern Nigeria through the activities of the Community and Social Development Agency (CSDA). This study is anchored on institutional theory. A cross-sectional survey research design was adopted. The study employed a multi-stage, stratified, and purposive sampling technique with a sample size of 398 respondents. Primary data were collected through a structured questionnaire. The data collected were coded and analysed using the Statistical Package for the Social Sciences (SPSS) version 27. Both descriptive and inferential statistical techniques were employed. Descriptive statistics include frequencies, percentages, means, and standard deviation, while multiple regression analysis was used to test the hypothesis. The study finds that leadership effectiveness and foreign assistance influence the sustainability of community-based infrastructure for water, electricity, and roads and that institutional weakness, corruption, lack of transparency, and accountability challenge and shape the outcomes of infrastructure projects, with R^2=0.967, indicating that leadership effectiveness and foreign assistance account for 96.7% of the variance. The study contributes to development administration by emphasising the role that national and sub-national leaders, administrators, development agencies, local communities, and donor institutions and organisations should play in achieving community infrastructure development. This study recommends strengthening local leadership and institutional capacity, inclusive governance, and transparency to enhance the sustainability of community-based infrastructure. The policy implication would inform government and policymakers about the importance of effective leadership, institutional reforms, and capacity building as desiderata in enhancing foreign assistance administration to achieve sustainable community-based infrastructure development that will enhance the socioeconomic livelihoods of local communities in Nigeria.

Keywords: Community-based infrastructure, Community and social development agency, Foreign assistance administration, Leadership, Sustainability, Southeastern Nigeria

1. Introduction

Foreign assistance is one of the main tools of international development, particularly for alleviating infrastructure deficits in developing economies. In sub-Saharan Africa, low fiscal and institutional capacity and governance problems result in limited access to public infrastructure, which can be supplemented by foreign aid (Riddell, 2014; OECD, 2020). This support is provided by bilateral development organisations and institutions such as the Foreign, Commonwealth and Development Office (FCDO) and the United States Agency for International Development (USAID), or multilateral development institutions and organisations such as the World Bank, the African Development Bank (ADB), and the United Nations Development Programme (UNDP).

Foreign assistance approaches have placed greater emphasis on sustainable infrastructure investments as an integral part of sustainable socioeconomic transformation and community development in recent years. In developing effective infrastructure financing in Nigeria, USAID INVEST (2023) envisioned the need for various development partners, government institutions, private-sector investors and communities to form partnerships. They mainly focus on improving typical rural services, including rural roads, potable water, health, education, sanitation, and rural electrification. Overall, these interventions aim to improve human

development outcomes, reduce poverty, and strengthen institutional capacity at the grassroots level (World Bank, 2020; AfDB, 2021).

Institutional theory provides insight into a framework for understanding the influence of leadership on development outcomes. The following are common attributes of good leaders (Bass and Riggio, 2014; Northouse, 2021): vision, integrity, inclusiveness, and the ability to inspire a shared commitment to developmental goals. Good leadership in the development administration context can facilitate teamwork, coordination, and coherence of effort among donor agencies, government, civil society organisations, and community stakeholders, thereby improving policy coordination, project implementation, and sustainability. Good leadership also contributes to trust in institutions, stakeholder engagement, and accountability mechanisms for effective aid delivery (Salifu and Salifu, 2024).

Sustainable socioeconomic development is an important aspect of sustainable infrastructural development, which, in turn, is a key building block for long-term socio-economic development, especially in areas facing persistent developmental shortcomings, particularly in developing countries in Africa (Chidozie et al., 2024). Sustainability in infrastructure is not only about physical sustainability but also about the institutional and community capacity to finance, maintain, and effectively operate infrastructure over time without relying on external support (Sachs, 2015). Foreign assistance has a positive effect on reducing poverty, but this effect is far greater when directed towards infrastructure investments. Their results highlight strategic deployment and effective coordination between major sectors, such as water, transportation, energy, and other social services, and their influence on aid effectiveness. This is particularly relevant in Nigeria's Southeast region, where the administrative capacity of most jurisdictions remains weak, and the availability of development infrastructure varies among states, creating inequalities in access to it (Hamidu et al., 2020).

In many subnational settings, the administration of donor-funded interventions was often fragmented, inter-agency coordination was inadequate, and supervision was lacking. The presence of such structural weaknesses is exacerbated by the absence of leadership at the political and management levels, resulting in inadequate planning, weak implementation, and ineffective monitoring and evaluation. Leadership capacity is a consistent theme in the empirical governance literature and is associated with project efficiency and overall development (Andrews, Pritchett and Woolcock, 2017).

2. Statement of Problem

The unsustainability of infrastructure remains a challenge at the subnational level in Southeastern Nigeria. While governments have made tremendous investments and donors have initiated interventions, a large percentage of projects are not sustained beyond the implementation stage. However, this is mainly due to a poor maintenance culture, low levels of stakeholder engagement, and a lack of institutional and technical capacity at the local government level (Akinwale, 2020; World Bank, 2020). These constraints, taken together, undermine the sustainability of infrastructure initiative projects and thus have significant consequences for sustainable development in Southeastern Nigeria.

Southeastern Nigeria has a significant number of donor-supported infrastructure projects that have been constructed over the years but have not worked for long; a few are not even functional after some time has passed since their construction, and some are outright abandoned. Nigeria continues to receive foreign assistance for the development sector, especially for building infrastructure in communities, but the results of this funding remain far from sustainable and long-term (World Bank, 2020; OECD, 2020).

One crucial aspect of this challenge is the lack of sustainability on donor-financed infrastructure projects. One of the focal points of this challenge is the weak sustainability of donor-financed infrastructure. The quality of leadership, institutions, bureaucratic processes and corruption are important factors that affect the results of infrastructure investments. In Southeast Nigeria, the deficiencies manifest as rapid deterioration in infrastructure quality soon after donor withdrawal, negatively impacting the long-term developmental value and effective administration of foreign-assisted infrastructure development in the region. In view of this, the general objective of the study aims to investigate the effects of leadership effectiveness and foreign assistance on the sustainability of community-based infrastructure initiatives in Southeastern Nigeria, while seeking to answer this research question:

RQ1: How do leadership effectiveness and foreign assistance influence the sustainability of community-based infrastructure in Southeastern Nigeria?

3. Literature Review

3.1 Foreign Assistance

Foreign assistance is the unconditional transfer of resources from developed to developing countries, mainly to promote economic development, enhance welfare, and meet humanitarian needs. Foreign assistance refers to the provision of financial resources, goods, or services from a high-income country to a lower-income country. It is mainly focused on development and welfare outcomes (Aliprandini and Stingl, 2016). Foreign assistance is used across sectors such as health, education, infrastructure, and humanitarian assistance, based on context-specific needs and donor priorities. It also highlights the development potential of foreign aid when properly targeted, including its impact on health indicators, agricultural productivity, and institutional strengthening (Thapa, 2020).

Community development projects in Nigeria have been greatly aided by programmes funded by the World Bank, the African Development Bank, the European Union, and other development partners. The Community and Social Development Project (CSDP) is one of the country's key community-based development projects (CSDP) implemented by the Community and Social Development Agency (CSDA) (NASCCO, 2025). The programme aims to enable communities to define their own development needs, engage in the project implementation and maintain the completed infrastructure. However, project sustainability varies across communities, showing that sustainable development is not solely dependent on financial support and thus underscoring the role of leadership and institutional capacity (World Bank, 2022).

3.2 Leadership Effectiveness and Infrastructure Sustainability

Effective development interventions have become one of the most important factors for leadership. In public administration, leadership effectiveness encompasses strategic vision and visionary goals, accountability, transparency, ethical behaviour, stakeholder engagement, coordination, and the efficient administration and utilisation of public funds. Therefore, to ensure that institutional goals are met efficiently and sustainably, effective leadership fosters inclusivity and the participation of various government institutions, development agencies, civil society organisations, and beneficiary communities (Northouse, 2021).

Leadership is the ability to inspire and motivate others to attain personal and professional objectives. Transformational leaders are visionary people who use creative approaches to motivate and inspire their followers to address a problem. Leaders must have a charismatic, visionary and emotionally intelligent approach. There is a problem with the successful adoption of this leadership style because not everyone has the characteristics needed to be effective at the task (Abasilim, Gberevbie and Osibanjo, 2019). Leadership is a process that involves self-awareness, intentional goal-setting, and other forms of development. This view sees effective leadership as about understanding individual strengths and applying them in a smart way to motivate, rally, and energise teams toward a common goal. (Sustainable community-based infrastructure (Northouse, 2021).

Sustainable infrastructure is a system planned, designed, built, run, and dismantled to enhance economic, environmental, social, and institutional sustainability throughout its life cycle. Sustainable infrastructure is the provision of systems that deliver sustainable socioeconomic and environmental value while promoting climate change resilience and achieving overall infrastructure sustainability goals. It also emphasises the functions of sustainable infrastructure in minimising greenhouse gas emissions, optimising resource use, and promoting community well-being while ensuring the equitable provision of important infrastructural services such as access to clean water, rural electrification (energy), and roads for transportation (Chandra Asri Group, 2025).

Infrastructural initiatives should not only support socioeconomic development but also be planned to be resilient, socially inclusive, and environmentally sustainable throughout their lifespans. It also emphasises the importance of coherence among infrastructure financing, institutional arrangements, and policy frameworks for effective development outcomes. It concludes that sustainable infrastructure is one of the key pillars for achieving the Sustainable Development Goals (SDGs) and moving towards low-carbon and resilient economies (Yanamandra, 2020).

Leadership effectiveness and infrastructure sustainability have become an area of increasing academic interest. Sustainable infrastructure is more than just operational service, maintenance, community ownership and long-term socio-economic returns to the project; it is a continuous process. Effective leadership helps enhance sustainability through inclusive, youth-involving planning, open resource allocation, frequent monitoring, and institutional coordination and accountability procedures. Involving the community in the

management of the facilities promotes local ownership, which boosts beneficiaries' commitment to maintaining completed facilities and safeguarding public investments (Chukwudi and Owoh, 2024; Ezebuilo et al, 2025).

3.3 The Effectiveness of Foreign Assistance and Infrastructure Development

The quality and accessibility of infrastructure, specifically transport systems, have a significant effect on the development in Sub-Saharan Africa. The absence of infrastructure and the failure of policy coordination make it difficult to achieve inclusive, sustainable, and transformative development from foreign aid. This research has shown that infrastructure is a two-way street; it is not a by-product of aid but essential to its effectiveness (Ofori et al., 2024).

Jambadu et al. (2024) provided evidence of the potential dangers to the sustainability of infrastructure projects in Africa posed by reliance on foreign assistance, resulting from unequal relationships and externally led technology transfer processes. Restriction of local participation in design, development, and operation will create barriers to capacity development at the local level. As a result, foreign aid can be used to build infrastructure, but is often ineffective at maintaining it and delivering institutional sustainability. Acemogolu and Robinson (2012) opined that neoliberal policy frameworks and unequal donor–recipient power dynamics significantly influence the effectiveness of aid in Africa within a broader political economy context. The study argues that foreign aid generally reflects donors' agendas and priorities, potentially affecting recipient countries' development agendas and reducing ownership. This can affect institutional independence and reduce the degree of congruence between the local development agenda and the nature of the aid action (Moyo, 2009).

This study by Aja-Eke (2025) shows a cross-cutting pattern of differences in perceptions of the effectiveness of foreign assistance in Nigeria by socioeconomic status and geographical location. Based on the study, support is not equally effective; it depends on the context in which it is implemented, including income inequality, the institutional context, and regional characteristics. The result highlights the need for context-sensitive analysis for understanding the differential impacts of foreign-assisted development interventions. This is particularly crucial in Southeastern Nigeria, where donor-funded infrastructure projects are often poorly coordinated and implemented.

The results from empirical research, especially in Southeastern Nigeria, suggest other governance-related constraints to assist effectiveness. Sub-optimal implementation, delays, and abandonment of donor-funded infrastructure projects are caused, in part, by a lack of effective technical leadership and administrative capacity within local government institutions to carry them out (Ezeani, 2018). They are weak, which significantly limits the sustainability of development interventions at the grassroots level. In further research, ‘elite capture’ is cited as one of the primary issues in the effective administration of aid in the region. Project allocation and implementation are sometimes guided by political patronage networks, which decreases transparency and accountability (Okoye and Chukwu, 2021). This hurts the equity of infrastructure provision and public trust in governments and development institutions. Furthermore, empirical evidence shows that the failure rate of rural infrastructure projects, such as water supply, rural road networks, and rural electrification, is especially high in Southeastern Nigeria. Poor maintenance structures, lack of post-project financing, and lack of community ownership structures are common reasons cited for these failures (World Bank, 2020).

4. Theoretical Framework

Institutional Theory was adopted in this study. The theory offers a framework for understanding the relationships among leadership quality, institutions, and the transition to good governance, and their impact on the effectiveness and sustainability of community infrastructure development in Southeastern Nigeria, with assistance from foreign partners. Institutional Theory was developed by scholars Meyer and Rowan (1977), DiMaggio and Powell (1983), and Scott (2014). To them, institutions are formal rules, regulations, policies, administrative procedures, and informal norms that affect how an organisation works, its legitimacy, and decision-making (Dacin, Goodstein and Scott, 2002).

Institutional theory argues that "development programmes brought about by donations" have lasting effects only when the recipient institutions have the administrative capacity, governance mechanisms and accountability systems that will enable the development programme to be implemented effectively. Development agencies, such as the Community and Social Development Agency (CSDA), are developing within institutional settings shaped by government regulations, donor conditions, community expectations, and

political pressures (Berthod, 2018). These institutional structures impact leadership, project implementation, resource allocation, monitoring and stakeholder engagement. Foreign aid is more likely to lead to sustainable infrastructure outcomes when institutions are transparent, accountable, and professionally managed. On the other hand, the lack of effective coordination, political interference, corruption, and inefficient public administration in project implementation reduces project sustainability despite high levels of donor financing (Hargadon and Douglas, 2011).

Institutional Theory also underscores the significance of leadership to improve institutional effectiveness. Leaders shape the organisation's culture, ensure adherence to rules, ensure the organisation utilises its resources, and coordinate relationships among stakeholders. Thus, effective leadership contributes to institutional legitimacy through transparency, accountability, and participatory governance. In the context of community-based infrastructure development, institutional leadership is especially important as various actors, donor agencies, government institutions, local governments, community development associations, contractors, and beneficiary communities have to cooperate throughout the project planning, implementation, monitoring and maintenance processes. The theory gives a coherent basis for analysing the relationship between leadership and governance and their consequences for the sustainability of community and social development projects (CDPs) in Southeastern Nigeria.

5. Methodology

The study adopted a cross-sectional survey research design to investigate the influence of leadership effectiveness and foreign assistance on the sustainability of community-based infrastructure in Southeastern Nigeria. This research approach was considered appropriate because it allows data to be collected from a population, examines its features, attitudes, and relationships among variables, and facilitates hypothesis testing through statistical analysis. This approach was adopted because data were collected from respondents at a single point in time, thus providing empirical evidence on views of leadership effectiveness, foreign assistance, governance practices, institutional capacity and infrastructure sustainability in Southeastern Nigeria.

The study covered Southeastern Nigeria, comprising the five states of Abia, Anambra, Ebonyi, Enugu and Imo. The region has benefited from foreign-assisted community-driven development initiatives executed through the Community and Social Development Agency (CSDA) in partnership with the World Bank. The region was chosen for this study because of the various foreign-assisted community infrastructure projects and programmes. Using the Krejcie and Morgan sample size determination table, 398 respondents were considered as the sample size for this study. Multi-stage, stratified and purposive sampling techniques were employed. The primary method of data collection was a structured questionnaire using a 5-point Likert scale to elicit participants' responses. The collected data were further analysed using Statistical Package for the Social Sciences (SPSS) version 27. Descriptive and inferential statistical methods were used for the data analysis. The descriptive statistics, such as frequencies, percentages, means, and standard deviations, were used to analyse the respondents' demographic data, while multiple regression analysis was used to test the hypothesis.



Source: Adapted from Obi, Nwalusi, Ibem and Okeke (2021).

Figure 1: Map of the Southeastern Geopolitical Zone of Nigeria

6. Data Presentation and Analysis

Demographic Characteristics of Respondents

Table 1: Demographic Characteristics of Respondents

Variable	Category	Frequency	Percentage (%)
Age	18 – 28 years	52	13.1
	29 – 39 years	94	23.6
	40 – 50 years	120	30.2
	51 – 61 years	80	20.1
	62 years and above	52	13.1
	Total	398	100.0
Gender	Male	199	50.0
	Female	199	50.0
	Total	398	100.0
Education	Secondary	117	29.4
	Higher Diploma	134	33.7
	Bachelor	94	23.6
	Masters	40	10.1
	PhD	13	3.3
	Total	398	100.0
Occupation	Student	52	13.1
	Farmer	92	23.1
	Artisan	67	16.8
	Business	68	17.1
	Civil Servants	119	29.9
	Total	398	100.0

Source: Author's Field Survey (2026).

Table 1 shows the demographic profile of the respondents who participated in the study. The demographic variables examined were respondents' age, gender, education, and occupation, along with the percentage distribution of their responses.

Table 2: Descriptive Statistics on Leadership Effectiveness, Foreign Assistance, and Community-based Infrastructure Sustainability Initiatives

s/n	Statements	Mean	Std. Dev.	Decision
1	provision of clean and drinkable water	3.4372	1.40880	Agree
2	Motorised water projects are durable and functional	3.2362	1.40510	Agree
3	Road access has improved through culverts and bridges	3.4397	1.47869	Agree
4	Road construction has improved the transportation of farm produce	3.5075	1.36110	Agree
5	Rural electrification addressed energy needs	3.2714	1.43604	Agree
6	The provision of transformers improved business activities	3.4045	1.38349	Agree
Grand Mean		3.3838		

Source: Field Survey Data (2026).

Table 2 shows that the majority of the respondents agreed that foreign assistance has been effective in supporting the sustainability of infrastructure projects. The improvement in transportation services was rated

highest (Mean Score = 3.5075), followed by the enhancement of water services (Mean Score= 3.4475). The improvement in transportation services through road construction and grading activities was rated highest (Rating = 3.5075, Mean Score), followed by the improvement of water services with a mean score of 3.4475. On the other hand, the lowest mean was observed for the durability of the motorised water project, at 3.2362. The overall grand mean is 3.38, which attests to the tremendous contribution of foreign assistance to sustainable infrastructure development in water supply, transportation, and rural electrification.

Hypothesis

H_0: Leadership effectiveness and foreign assistance have no significant influence on the sustainability of the community-based infrastructure in Southeastern Nigeria.

H_i Leadership effectiveness and foreign assistance have a significant influence on the sustainability of the community-based infrastructure in Southeastern Nigeria.

Table 3: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of Estimate	Durbin-Watson
1	0.983	0.967	0.967	0.24687	2.215

Predictors: Leadership Effectiveness, Foreign Assistance

Dependent Variable: Community-based Infrastructure Sustainability

Source: Field Survey Data (2026).

The Model Summary shows a very strong relationship between the predictor variables and community-based infrastructure sustainability, with an R value of 0.983. Leadership effectiveness and the challenges that constrain the efforts explained 98.3% of the variation in sustainability initiatives in community-based infrastructure (R^2 = 0.967). Additionally, the adjusted R^2 is 0.997, close to 1, indicating that the regression model is robust and has high explanatory power.

Table 4: Anova

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	701.132	4	175.283	1876.077	0.000
Residual	2.228	393	0.061		
Total	725.084	397			

Dependent Variable: Community-based Infrastructure Sustainability

Source: Field Survey Data (2026).

The ANOVA results indicate that the regression model is statistically significant, with an F-value of 2876.077 and a p-value of 0.000, both of which are below the 0.05 significance level. This evidence demonstrates that the predictor variables collectively have a considerable impact on Community-based Infrastructure Sustainability.

Table 5: Regression Coefficients

Variable	B	Std. Error	Beta	t-value	Sig.	VIF
Constant	0.048	0.118	–	0.410	0.0682	_
Foreign Assistance	0.556	0.019	0.0578	29.982	< 0.001	4.427
Leadership Effectiveness	0.427	0.021	0.435	20.597	< 0.001	5.299
Corruption and Lack of Transparency	-0.023	0.015	-0.022	-1.542	0.124	2.339
Institutional Weakness	0.023	0.014	0.021	1.668	0.096	1.882

Source: Field Survey Data (2026)

7. Discussion of Findings

Some factors were estimated to predict the sustainability of community-based infrastructure through effective leadership and foreign assistance using multiple regression analysis. Infrastructural indicators such as water supply, roads, and electrification, with a significant statistical model of $F(4, 393) = 2876.077$, $p < 0.001$. The coefficient analysis shows that leadership effectiveness is a highly significant and positive predictor of infrastructural sustainability ($\beta = 0.578$, $t = 29.982$, $p < 0.001$). At the same time, foreign assistance is also a very significant and positive predictor of infrastructural sustainability ($\beta = 0.435$, $t = 20.597$, $p < 0.001$). That is, the negative effect of corruption ($\beta = -0.022$, $p = 0.124$) and institutional weakness ($\beta = 0.021$, $p = 0.096$) were not statistically significant in this model. Thus, the overall p-value (.000) is less than the significance level (0.05) used in this study, so the null hypothesis (H_0) is rejected. The alternative hypothesis is accepted: Leadership effectiveness and foreign assistance have a significant effect on the sustainability of community-based infrastructure projects in Southeastern Nigeria. The regression model was statistically significant ($F = 64{,}089.606$; $p = 0.000 < 0.05$), with $R^2=0.967$, indicating that the predictors of leadership effectiveness and foreign assistance can explain 96.7% of the variation in infrastructural success, which implies that leadership effectiveness and foreign assistance have a significant influence on the sustainability of community-based infrastructure.

8. Summary and Conclusion

The effect of leadership effectiveness and foreign assistance on the sustainability of community-based infrastructure (CBIs), which involved water boreholes, road grading, and rural electrification, in Southeastern Nigeria was studied. The study was conducted amid continued underinvestment in infrastructure, rising donor-driven activities, and existing anxieties over the sustainability of donor-funded development projects in the region. Inspired by the Institutional Theory, the study examined the interplay among leadership quality, institutional capacity, and community involvement in the effectiveness and sustainability of foreign-assisted infrastructural projects. The findings of this study confirmed that leadership remains a critical factor in effective aid administration and sustainable infrastructure outcomes. The leadership structures worked efficiently, coordination improved, accountability strengthened, and stakeholder involvement enhanced, supporting efficient implementation processes. In conclusion, sustainable community-based infrastructure in Nigeria needs to shift from the quantity of foreign assistance to the quality of leadership and governance that manages it. Enhancing the effectiveness of donor-funded programmes and strengthening local institutions to sustain development gains after the end of external support will require strengthening institutions, capacity building, transparency and accountability, and meaningful community participation. The reforms are critical for enhancing the socioeconomic welfare of communities and for Nigeria to progress towards inclusive, sustainable development.

9. Recommendations

The following recommendations were made based on the results of the study:

- The Federal and regional governments, as well as other stakeholders, should invest in the strengthening and reform of institutional frameworks and capacity to effectively administer foreign assistance projects for sustainable community-based infrastructure projects in Nigeria.
- Federal and regional governments should encourage local leadership capacity within the institutions that are responsible for the administration and implementation of foreign-assisted development projects. They should prioritise continuous leadership training and capacity building in areas such as project management, strategic planning, stakeholder coordination, financial accountability, and participatory governance.
- The Federal Government should enact measures to minimise political interference in appointments and to professionalise the institutions of development administration, which should be given great attention. The effectiveness of subnational-level leadership would greatly enhance project coordination, implementation efficiency, and the sustainability of donor-funded infrastructure projects.
- Federal and regional governments should ensure that institutional accountability reforms are comprehensive and cover all aspects of the transparency and effectiveness of governance in aid administration systems, and reduce corruption.

Acknowledgements

The authors appreciate the Covenant University Centre for Research, Innovation, and Discovery (CUCRID) for supporting this conference.

Ethics Declaration: The study adhered to ethical principles, as participation was entirely voluntary and respondents were informed of the study's purpose before completing the questionnaire. Anonymity and confidentiality were guaranteed, as respondents' personal and identifiable information was not disclosed.

AI Declaration: Grammarly was used to correct and proofread this manuscript.

References

Abasilim, U.D., Gberevbie, D.E. and Osibanjo, O.A. (2019) "Leadership styles and employee commitment: Empirical evidence from Nigeria", SAGE Open, Vol. 9, No. 3. https://doi.org/10.1177/2158244019866287

African Development Bank (AfDB) (2021). "African Economic Outlook 2021". Abidjan: African Development Bank.

Aja-Eke, D. (2025) "Foreign aid and socioeconomic development: The perceptions of aid in Nigeria", Journal of Asian and African Studies, Vol. 60, No. 8, pp. 4971–4983.

Akinwale, A.A. (2020) "Infrastructure governance and development sustainability in Nigeria", Journal of African Development Studies, Vol. 12, Vol. 1, pp. 55–72.

Aliprandini, M. and Stingl, A. (2016) "Foreign aid: Overview". EBSCO Research Starters. https://www.ebsco.com/research-starters/diplomacy-and-international-relations/foreign-aid-overview

Andrews, M., Pritchett, L. and Woolcock, M. (2017) "Building state capability: Evidence, analysis, action". Oxford: Oxford University Press.

Bass, B.M. and Riggio, R.E. (2014) "Transformational leadership". 2nd edition. New York: Psychology Press.

Berthod, O. (2018) "Institutional theory of organisations", in Farazmand, A. (ed.) Global Encyclopedia of Public Administration, Public Policy, and Governance. Cham: Springer. https://doi.org/10.1007/978-3-319-20928-9_63

Burnside, C. and Dollar, D. (2000) "Aid, policies, and growth", American Economic Review, Vol. 90, No. 4, pp. 847–868.

Chandra Asri Group (2025) "Sustainable infrastructure". https://chandra-asri.com/en/blog/sustainable-infrastructure.

Chidozie, F., Osimen, G.U., Bhadmus, J. and Newo, O. (2024) "Sustainable Development Goals implementation in a post-colonial African state: Any future for the African Continental Free Trade Area?" Sustainable Development, pp. 1–12.

Chukwudi, C.E. and Owoh, E.E. (2024) "Bolstering the impact of town unions' administration and community development initiatives in Igboland: A study of APU in the Awgbu Community of Anambra State, Nigeria", African Renaissance, Vol. 21, No. 1, pp. 299–322.

Dacin, T., Goodstein, J. and Scott, W.R. (2002) "Institutional theory and institutional change: Introduction to the special research forum", Academy of Management Journal, Vol. 45, No. 1, pp. 45–57.

Ezeani, E.O. (2018) "Public administration in Nigeria: Perspectives and challenges". Enugu: Zik-Chuks Publishers.

Ezebuilo, P.C., Chukwudi, C.E., Obiora, C.A. and Ofuonye, J.N. (2025) "Youth empowerment and sustainable development: An assessment of the 'One Youth-Two Skills scheme in Anambra State, Nigeria', Ianna Journal of Interdisciplinary Studies, Vol. 7, No. 2, pp. 685–699.

Hamidu, A., Osei, K.A. and Ibrahim, R. (2020) "Impact of foreign aid on education infrastructure in West Africa", African Journal of Education and Development, Vol. 12, No. 3, pp. 45–58

Hargadon, A. and Douglas, Y. (2001) "When innovations meet institutions: Edison and the design of the electric light", Administrative Science Quarterly, Vol. 46, pp. 476–501.

Jambadu, L., Monstadt, J. and Pilo, F. (2024) "The politics of tied aid", World Development, pp. 175, 106476.

Moyo, D. (2009) "Dead aid: Why aid is not working and how there is another way for Africa." London: Penguin Books.

National Social Safety Net Coordinating Office (NASSCO) (2025) "Community and Social Development Project (CSDP)". Abuja: NASSCO. https://nassp.gov.ng/community-and-social-development-project-csdp/

Northouse, P.G. (2021) "Leadership: Theory and practice". 8th edition. Thousand Oaks, CA: Sage Publications.

Obi, N.I., Nwalusi, D.M., Ibem, E.O. and Okeke, O.F. (2021) "Assessment of the role of greenbelts in environmental and socioeconomic development of urban areas in Southeast Nigeria", Journal of Civil Engineering and Architecture, Vol. 9, No. 2, pp. 545–557.

OECD (2020) "OECD and donor countries working to focus development efforts on the COVID-19 crisis, building on a rise in official aid in 2019." Paris: OECD. https://www.oecd.org

Ofori, I.K., Ojong, N. and Gbolonyo, E.Y. (2024) "Foreign aid and inclusive growth", Growth and Change, Vol. 55, No. 4.

Okoye, C. and Chukwu, L. (2021) "Political economy of foreign aid in Nigeria", Journal of Public Administration and Policy Research, Vol. 13, No. 2, pp. 98–110.

Riddell, R.C. (2014) "Does foreign aid really work?" Oxford: Oxford University Press.

Sachs, J.D. (2015) "The age of sustainable development". New York: Columbia University Press.

Salifu, G.A. and Salifu, Z. (2024) "Aid administration and sustainable development in the post-COVID-19 era in Africa: A literature review approach", Cogent Social Sciences, Vol. 10, No. 1, 2312649.

Thapa, I. (2020) "Foreign aid: Positive and negative impact in developing countries". Public Administration Campus, Tribhuvan University, pp. 1–7. https://doi.org/10.13140/RG.2.2.19155.81448

USAID INVEST (2023) "Investing in infrastructure in Nigeria". https://medium.com

World Bank (2020) "World Development Indicators". Washington, DC: World Bank. https://www.worldbank.org
World Bank (2022) "Implementation completion and results report to the Federal Republic of Nigeria for the Community and Social Development Project". Washington, DC: World Bank. https://documents1.worldbank.org/curated/en/888321654547774284/pdf/Nigeria-Community-and-Social-Development-Project.pdf
Yanamandra, S. (2020) "Sustainable infrastructure overview". Cambridge: University of Cambridge.

Can the Crippled Giant Walk Again? Evaluating Nigeria's Rising State Credentials in Environmental Resource Governance

Michael Ayobami Fajobi, Fadeke Esther Olu-Owolabi and Felix Chidozie
Department of Political Science and International Relations, College of Leadership and Development Studies, Covenant University, Ota, Nigeria

michael.fajobi@covenantuniversity.edu.ng
fadeke.owolabi@covenantuniversity.edu.ng
felix.chidozie@covenantuniversity.edu.ng

Abstract: Nigeria, often referred to as the "Giant of Africa", has long been perceived as an emerging power with evident regional influence, a perception that stems from its foreign policy adopted by successive administrations since independence. However, internal challenges have transformed the accolade into a "crippled giant" in literature. Drawing on secondary sources, this paper assesses Nigeria's credentials as a rising state in an emerging multipolar world, where traditional Western hegemony is contested by rising Asian powers, the expansion of the BRICS, and shifting global alliances. The analysis reveals that Nigeria has substantial credentials, including its youthful demographic, enormous military capabilities, growing soft power projection, rapid technological expansion, particularly in fintech, and abundant natural resources, including oil, lithium, and sand. However, unlike traditional credentials of rising states that emphasise military and economic capabilities in existing international relations scholarship, this paper argues that strategic natural resource endowment and environmental governance constitute an additional pivotal credential of rising states, as the ability to harness these resources can translate into economic prosperity. Nevertheless, these credentials remain under-optimised due to structural and institutional challenges, environmental security issues, corruption, and policy inconsistency, which undermine Nigeria's capacity. The paper concludes that for Nigeria to realistically join the league of rising states, transformational leadership must be embraced, accompanied by domestic reforms in governance, security, and economic diversification beyond oil. Until such conversion is pragmatically embraced, the crippled giant is unlikely to walk again on the global stage, and as a result, Nigeria's potentials will remain unrealised.

Keywords: Environmental security, Hegemony, Resource governance, Rising states, Sand resource, Soft power

1. Introduction

The contemporary international system is experiencing a significant transformation characterised by the gradual decentralisation of hegemony beyond the traditional Western dominance to a wider constellation of states whose economic, demographic and strategic resources are on the rise (Alexandroff & Cooper, 2010).

Some scholars in international relations (Jaafar, 2025; Urio, 2024) have notably interpreted this development as the transition from a unipolar world order to a multipolar global system or what Archaya (2025) called a multiplex order, where there are multiple emerging states competing for power and expanding their influence abroad. This paradigm shift has stimulated a growing body of scholarship on rising powers, especially in relation to states such as China, India, Brazil, South Africa, and Turkey. Within this emerging order, a league of rising states is routinely classified as potential emerging powers due to their growing economic bases, population, and enhanced diplomatic drive in the international system. In Africa, Nigeria frequently appears as a potential rising power with over 220 million people, the largest demographic base in Africa and one of the largest economies on the continent (Ogunnubi, & Awosusi, 2022).

Some studies have argued that Nigeria possesses several structural attributes that are congruent with the cluster of emerging powers (Osimen et al, 2024; Onuoha, 2019; Oshewolo, 2019). The reason is not far-fetched; Osaghae (1998) and Akinboye (2013) have documented a chronological record of diplomatic influence and the display of power in Africa to the extent that the appellation "giant of Africa" has been bestowed on Abuja. However, Osaghae (1998) rechristened the appellation as "crippled giant" due to the structural weaknesses that have crippled Nigeria since its inception. It was on this note that Akinboye (2013) described the foreign policy of Nigeria since independence as "beautiful abroad but ugly at home". This paradox raises a germane question: Does Nigeria possess the credentials necessary to join the league of rising states in an emerging multipolar international system? Addressing this national question is the main thrust of this paper. However, to make this achievable, this paper is divided into six distinctive sections. Following this introduction, the second section appraises the conceptual debates surrounding rising powers in international relations literature. The third section explores Nigeria's colonial origin and the structural contradictions embedded in its formation. The fourth presents an overview of Nigeria's regional and global influence through the foreign policy engagements of successive administrations since independence. The fifth section evaluates Nigeria's credentials and whether

Abuja can realistically join the league of rising states given its structural contradictions. The sixth section entails the conclusion.

2. Methodology

This paper adopted a qualitative research design relying solely on secondary data from peer-reviewed articles, books, and internet sources. Given the exploratory nature of this paper, the paper adopted this approach to interrogate Nigeria's credentials for joining the league of rising states. The researchers sourced these documents using SCOPUS, Google Scholar, and the Springer Nature database. The credibility of the cited documents and the outlets where they were published are the primary criteria for selecting documented sources. The documents gathered were analysed using content analysis.

2.1 Rising Powers in International Relations Discourse

The concept of rising powers has taken centre stage in the modern international relations literature, although the term came to fore during the post-Cold War period, its intellectual foundation could be traced back to the earlier theoretical attempts that aimed to explain shifts in the global power structure.

One of the earliest theories to consider such dynamics is the Power Transition Theory by A.F.K. Organski, which posits that international instability often emerges when rapidly developing states are challenged by the emergence of rising powers within the international system. This theory posits that rising states are those that undergo faster development in terms of economic, military and demographic capabilities, thereby challenging the status quo of power distribution (Organski, 1958).

Likewise, the theory of long cycles in world politics by George Modelski holds that the international system is characterised by the emergence and decline of world powers. In these cycles, new states ultimately usurp the hegemony of powerful states, creating a condition of systemic instability and geopolitical change (Modelski, 1987).

This debate has been enhanced further by contemporary scholarship. The resuscitation of the "Thucydides Trap" by Allison Graham is based on the traditional observation that the rise of Athens and the resulting fear in Sparta provoked the war in ancient Greece. In contemporary settings, this model is often used to examine conflict between emerging and established powers, most especially the strategic rivalry between China and the United States of America (Allison, 2017).

More elaborately, the term "emerging power" gained traction in political economy, where complementary term like "emerging market" is often used to describe fast-emerging economies that have been absorbed into international financial systems. As time went by, this economic term was extended to political analysis, creating a broader notion of emerging powers in international relations (Folarin et al., 2016). Equally, the concept of "middle powers" has conventionally been used to refer to states with moderate degrees of material power that engage in multilateral diplomacy and alliance-building in international politics (Manicom, & Reeves, 2014).

In spite of this conceptual divergence, emerging powers must possess certain sterling qualities such as sustained economic growth, growing populations, increasing military capabilities, expanding technological and industrial capacity, regional leadership roles, and growing participation in global governance institutions (Mingst & McKibben Arreguin-Toft, 2018).

2.2 The Birth of the Giant: Nigeria's Historical Formation and Structural Contradictions

Prior to the formation of Nigeria as a sovereign state, the territory was governed by the British Colonial Government, commencing with the amalgamation of the Northern and Southern protectorates in 1914; a strategic move that was initiated by Lord Fredrick Lugard, who was the Governor-General at that time (Oni et al, 2026). It would be recalled that Lugard likened this merger to a union between the rich wife of substance (the economically prosperous Southern Protectorate) and the poor husband (the Northern Protectorate), as a necessary step toward prosperity for both. The colonial government consolidated this union by introducing indirect rule, which governed the local people through the traditional leaders. Consequently, this unsolicited union birthed structural consequences, including regionalism and ethnic fragmentation, weak national integration, resource allocation challenges, and persistent ethno-religious conflict (Oshagae, 1998).

The post-independence politics inherited these structural tensions, leading to the demise of the First Republic (1960-1966) following the first military coup in Nigeria. This development was followed by the Nigerian Civil War, which lasted from 1967 to 1970, and years of military rule until democratic rule was reinstated in 1999.

Despite its domestic hardships, Nigeria was also pursuing an ambitious foreign policy agenda in Africa. This is the paradox of internal vulnerability and external activism, which has characterised Nigeria's external relations.

2.3 Nigeria's Regional and Global Influence: An Overview

The foreign policy of the post-independent Nigerian government has been guided by the principle that the African continent is the centrepiece of its foreign policy. Successive administrations have sought to position Nigeria as a regional leader, promoting stability and integration across the continent. This section provides a chronological overview of Nigeria's regional and global influence since independence. This is imperative to set the pace for evaluating Nigeria's credentials in the subsequent section.

2.4 Alhaji Tafawa Balewa Administration (1960-1966)

The first prime minister of Nigeria, Tafawa Balewa, laid out the principles of Nigerian foreign policy soon after independence on October 1st, 1960. His government focused on African unity, anti-colonialism and non-alignment in the geopolitical situation of the Cold War (Akinboye, 2013). The government of Balewa was an active sponsor of liberation movements in Africa, especially in regions that were under colonial rule, such as Southern Rhodesia (now Zimbabwe), Angola, and Mozambique. Nigeria also contributed majorly to the formation of the Organisation of African Unity (OAU) in 1963, which aimed to enhance the unity, independence, and cooperation of the newly independent states in Africa.

2.5 Yakubu Gowon Government (1966-1975)

Following the Nigerian Civil War, General Gowon dedicated ample effort to restoring the international reputation of Nigeria and making it a stronger leader in Africa. The oil boom after the war gave Nigeria greater financial capacity, enabling the country to pursue a more aggressive regional policy. Among the greatest successes of the Gowon administration was Nigeria's role in the formation of the Economic Community of West African States (ECOWAS).

Furthermore, Nigeria became a member of the Organisation of Petroleum Exporting Countries (OPEC) in 1971, which contributed to improving its global economic image as a major oil producer. Belonging to OPEC enhanced Nigeria's bargaining power in international energy markets and provided substantial financial resources to project Nigeria's influence in Africa.

2.6 Muritala Mohammed/Olusegun Obasanjo Administration (1975-1979)

The short-lived yet memorable rule of General Muritala, later followed by General Obasanjo after Muritala's assassination. Nigeria took a strong stance and self-reliant diplomatic crusade, especially on behalf of the African liberation movements. Among the most striking is the acknowledgement of the Movement for the People's Liberation in Angola (MPLA) government in 1975, despite heavy pressure from the Western powers backed by the United States (Garba, 1987).

2.7 Mohammadu Buhari Administration (1983- 1985)

The focus of Nigeria's foreign policy marked a noticeable retreat from Nigeria's traditional "Big Brother" role in the region, as the regime prioritised stringent national interests amid severe economic crisis, rampant corruption, and domestic austerity over expansive regional benevolence. The administration also closed the Nigerian land borders against neighbouring states, a border policy that further reinforces the hegemonic position of Nigeria in West Africa, as other West African states felt the harsh consequences, especially the Benin Republic, whose market is largely dependent on Nigeria's economy (Abegunde, & Fabiyi, 2020).

2.8 General Ibrahim Babangida Administration (1985-1993)

The foreign policy of Nigeria under the administration of Babangida was based on regional diplomacy and economic revitalisation. Babangida was at the forefront in reinforcing ECOWAS as a regional security outfit. Nigeria's leadership was most evident during the first Liberian Civil War, when ECOWAS formed the Economic Community of West African Monitoring Group (ECOMOG) peacekeeping force in 1990. Nigeria provided the greatest number of troops, financial resources, and logistical support to the operation, and Nigerian forces were decisive in preventing the Liberian state from collapsing and in restoring relative stability (Babangida, 2025).

2.9 General Sani Abacha Administration (1993-1998)

Despite widespread international outcry over Nigeria's domestic political situation under Abacha due to the inhumane treatment of the Ogoni leaders, Nigeria continued to play an important role in regional security during this period.

Nigerian forces were highly active in the ECOMOG in both Liberia and Sierra Leone. In 1997, Sierra Leone was intervened in by Nigerian-led forces to restore a democratically elected government under President Ahmad Tejan Kabah, who had been overthrown in a military coup. These actions strengthened Nigeria's position as a regional hegemon in West Africa.

2.10 General Abdulsalami Abubakar Administration (1998-1999)

The short-term transitional government of General Abdulsalami was significant in restoring Nigeria's international image after decades of military rule. His leadership restored democratic rule and continued to participate in peacekeeping activities in the region. Nigeria maintained its engagement in ECOMOG missions in Sierra Leone to stabilise the entire region. The restoration of civilian rule in 1999 significantly improved Nigeria's international image and opened new diplomatic opportunities with other states.

2.11 Chief Olusegun Obasanjo Government (1999-2007)

President Obasanjo's return to power as a civilian president marked a pivotal turning point in Nigeria's politics and foreign policy. Obasanjo's administration prioritised rebuilding Nigeria's international credibility following decades of military rule. Obasanjo was an active diplomat who travelled to many countries and strengthened ties with world powers. One of the success stories of his administration was the Nigerian leadership in peacekeeping missions in Liberia during the Second Liberian Civil War in 2003.

2.12 Umaru Musa Yar'Adua Administration (2007-2010)

President Yar'Adua adopted a more conservative foreign policy, yet the period still saw Nigeria as a key mediator in regional political crises. It is worth noting that Nigeria was involved in a diplomatic intervention to stabilise Guinea-Bissau after the 2008 political crisis.

2.13 Goodluck Jonathan Administration (2010-2015)

President Jonathan assumed office following the death of Musa Yar'Adua. Jonathan's administration maintained Nigeria's regional leadership, particularly in peacekeeping and conflict management. In response to the 2012 military coup and the Islamist insurgency in northern Mali, Nigeria made a significant contribution to the African-led International Support Mission to Mali (AFISMA), deploying an estimated 1,200 troops and becoming the mission's largest contributor.

2.14 Muhammadu Buhari Administration (2015-2023)

The leadership of President Buhari prioritised regional security collaboration, especially in countering the Boko Haram insurgency. Nigeria strengthened the Multinational Joint Task Force (MNJTF) with the support of Chad, Niger and Cameroon to combat insurgent groups operating within the Lake Chad Basin (Alufoge, & Duruji, 2020).

2.15 Bola Ahmed Tinubu Administration (2023-Present)

The incumbent administration has maintained Nigeria's leadership in ECOWAS, especially in reaction to the Sahelian military coup wave. Nigeria has been at the forefront of diplomatic and military pressure by ECOWAS after the 2023 coup in the Republic of Niger, demanding that constitutional order be restored. A new foreign-policy framework, known as the 4D Doctrine (Democracy, Development, Demography, and Diaspora), has also been presented by the Tinubu administration, aimed at revisiting Nigeria's role as a significant diplomatic and economic player in Africa (Nwangwu, 2024).

3. Evaluating Nigeria's Credentials as a Rising State

Assessing whether Nigeria can realistically join the league of rising states requires examining the structural foundations of national power. In international relations scholarship, the capabilities of rising states are typically evaluated through a combination of demographic capacity, economic strength, military capability, and soft power projection (Nye, 2022). These indicators collectively determine whether a state possesses the structural resources necessary to influence regional and global politics. Nigeria exhibits several of these characteristics, suggesting that the nation has considerable latent potential and attributes of a rising state. To this end, this section appraises Nigeria's credentials.

3.1 Demographic Strength

Population size is a basic element of national strength in international relations. Large populations provide a state with an enormous pool of labour, a potentially large pool of military recruits, and a large domestic market for economic activity. Demography is therefore a key indicator in national capability indices and power calculations; countries such as China and India benefit greatly from their large populations (Archaya, 2025).

In this regard, Nigeria has one of the largest populations in the world. With over 220 million people the most populous country in Africa and the sixth most populous country in the world. Reports have shown that by 2050, Nigeria will have a population of about 350 million, making it the third most populous country in the world after India and China (United Nations, 2024).

3.2 Economic Capability

A nation's economy is one of the most significant indicators of attaining increasing power status. Organski (1958), in his power-transition theory, holds that when a state's economic growth is sustained, it gains the resources needed to build its military strength and gain enormous influence in the international system.

Without doubt, Nigeria has significant economic potential, one of the largest African economies, with a Gross Domestic Product (GDP) of $285 billion, competing with South Africa and Egypt for continental leadership (International Monetary Fund, 2025). Nigeria also possesses one of the largest domestic markets in Africa, driven by its large population and expanding urban middle class. The oil export industry has traditionally been the driver of Nigeria's economy since the discovery of crude oil in Oloibiri, Bayelsa State, in 1956. Oil revenues have been at the centre stage in determining Nigeria's fiscal capacity and international economic posture. Since the country joined OPEC in 1971, its global economic relevance in the energy sector has increased further.

Furthermore, Nigeria is a key actor in regional economic integration. Abuja is projected to take the lead in the African Continental Free Trade Area (AfCFTA) alongside South Africa, an ambitious initiative that aims to establish the world's largest free trade area by connecting over 1.3 billion people across the continent. Nigeria's economic size gives it the potential to shape trade flows, industrial development, and regional value chains across West Africa (Chidozie, Osimen, & Newo, 2024).

3.3 Military Capability

The Realist theory of international relations holds that military power remains critical in asserting a state's influence on the global stage as it enables a state to defend its national interests and deter rivals. Some indicators of military capability include defence expenditure, military personnel, and power-projection capabilities (Mearsheimer, 2014).

Nigeria has one of the biggest and most experienced armed forces in Africa. The Nigerian Armed Forces have historically played a significant role in regional peacekeeping and conflict-resolution efforts across West Africa. Nigeria has the largest active military personnel in West Africa, with about 230,000 active personnel and sixth in Africa after Ethiopia, Egypt, Morocco, Eritrea, and Sudan (Global Firepower, 2026).

3.4 Regional Leadership and Soft Power Projection

A state's ability to lead the region and wield diplomatic power is another indicator of rising power. The regional powers have become regular contributor to the political order in their geographical areas and hold key positions in regional institutions. Nigeria has been such a primary player in West Africa. In 1975, the country became a founding member of ECOWAS and the organisation's largest financial contributor, offering leadership and logistical services to ECOWAS programs to advance economic integration and regional security (Ogunnubi & Awosusi, 2022).

Nigeria's diplomatic activity extends even further to include the African Union and numerous United Nations projects. Nigerian diplomats have held high-profile positions in international bodies, and Nigerian peacekeeping units have served in many United Nations missions. Over the past years, Nigeria has pursued a broader diplomatic agenda outside the continent, showing interest in joining international governance structures such as BRICS, indicating its intention to be more involved in shaping international economic and political structures (Archarya, 2025).

In addition to regional leadership, the emerging powers are increasingly dependent on soft power to complement their power projection ability. Soft power is the ability of a state to influence the preferences of others via attraction, culture, and values rather than through coercion (Nye, 2008). Nigeria has a significant soft

power projection, especially in the cultural industries. The Nigerian film industry, often referred to as Nollywood, is one of the largest film production hubs in the world and contributes significantly to cultural discourse in Africa and the African diaspora in the world at large (Ezepue, 2020).

3.5 Technological Growth and Industrial Capacity

Innovative ideas have become an influential factor in national power in the twenty-first century. Rising states such as Singapore and India have been investing heavily in technological development to enhance their competitiveness globally. Nigeria, in turn, has demonstrated potential in the digital economy, specifically in fintech and start-up innovation. It has one of the largest technology start-up ecosystems in Africa, with most of it concentrated in Lagos, which has become a significant technology hub commonly referred to as the Silicon Lagoon of Africa.

3.6 Strategic Natural Resource Endowment and Environmental Governance

Nigeria's wealth of natural resources is an asset that is underutilised in power projection. Since its discovery, crude oil has been the state's major source of national wealth, yet the Nigerian state has not effectively translated this wealth into blessings. However, with the growing demand for lithium and the recent intensification of exploration in the Northern and Southern parts of the state, a new opportunity opens for Nigeria to realign itself in the changing political economy of the global energy transition. With proper management and sustainable exploitation, lithium reserves can be a significant source of wealth, strengthening Nigeria's position in global value chains for renewable energy. Also important is Nigeria's enormous sand resource, which is often ignored, as an asset for the country's development. Sand is a key raw material for urbanisation, transport infrastructure, and mega-scale infrastructure construction, which are essential for economic transformation. However, the importance of this divine endowment is not determined by the number of resources available, but by the government's ability to manage its extraction responsibly, to reduce environmental security impacts, and transform the benefits of resource wealth into sustainable national development. Nigeria's natural resource endowment, if properly managed, can be a strategic credential that enhances the country's profile as a rising state.

4. Giant in Size, Crippled in Structure: Barriers to Nigeria's Emergence as a Rising State

Despite Nigeria's credentials for joining the league of rising states, the country is battling with structural challenges that limit its full potential as an emerging power. This section appraises some of the barriers.

4.1 Structural Economic Constraints

Nigeria may have one of the largest economies on the African continent, but its organisational structure imposes heavy constraints that make it difficult to rise to the league of rising states. The Nigerian economy is highly reliant on crude oil exports, which form a major part of the government's revenue and foreign-exchange earnings (Oladoyin, Pokubo, & Osimen, 2024). Such dependence makes the country susceptible to fluctuations in global energy markets. In contrast to the already rising powers of China, India, and Brazil, whose growth patterns have been shaped by diversified industrial production and manufacturing surges, Nigeria's productive base is relatively limited. Besides dependence on oil, Nigeria is facing severe infrastructure shortages that also limit economic output. Poor electricity supply and industrial infrastructure increase production costs and reduce the competitiveness of local industries in international markets.

4.2 Weak Human Development Indicators

The development of human capital is a crucial yardstick for assessing a country's ability to transform demographic magnitude into productive national power. Despite Nigeria's high and fast-growing population, education, healthcare, and the standard of living of the people are severely challenged, hindering labour productivity and innovation capacity. Nigeria's human development indicators are relatively low compared to those of other emerging economies. Large segments of the population have limited access to quality education and health services, and unemployment and underemployment also limit the productive use of the labour force. Such structural constraints undermine the country's capacity to exploit the benefits of its demographic growth.

Conversely, it would be recalled that China and India invested enormous resources in education, the development of technical skills, and the human capital of their people during their transition phase. Without such investments, Nigeria risks demographic growth without the relative economic productivity that typically characterises the rise of a major power.

4.3 Security Challenges and Internal Instability

Constant security issues are another notable structural constraint on Nigeria's ability to maximise its potential as an emerging power. The nation has suffered a series of internal security crises over the last two decades, undermining its stability. The Boko Haram insurgency in the northeastern region has burdened the security apparatus of the state to a large extent (Alufoge & Duruji, 2020). Rampant banditry, Fulani Herdsmen attack, tribal violence and secessionist movements in different parts of the country are also posing gross problems to internal stability.

4.4 Institutional and Governance Weakness

The core factors that determine whether a state can translate national potential into long-lasting geopolitical influence are institutional power and the effectiveness of governance. Governance issues remained a major hindrance to establishing Nigeria's place as an emerging power in the international system. The continued corruption, weak bureaucratic institutions and electoral systems, and above all, inconsistent policy implementation undermine the effectiveness of state institutions and erode the citizens' trust in government. Stable institutions are needed to organise long-term economic policy required for a country's development.

5. Conclusion

Without doubt, Nigeria's historical formation since inception has created structural vulnerabilities that continue to shape its political trajectory. Nevertheless, the country has demonstrated regional leadership and continental activism in the past. Therefore, this paper concludes that the credentials for rising power status are present but under-optimised. The key question, however, is not whether Nigeria has the credentials to become a rising power; of course, it does. The more precise question is whether Nigeria can undertake the structural transformation necessary to convert potential into sustained geopolitical influence in an emerging multipolar world. Until this conversion occurs, Nigeria remains not a rising power but a state with rising potential.

Acknowledgement

The authors acknowledge Covenant University's Centre for Research, Innovation, and Discovery (CUCRID) for supporting the conference and the publication of proceedings registration fee. We also express our sincere gratitude for the support of the Social Science Research Council's African Peacebuilding and Development Dynamics Doctoral Dissertation Proposal Fellowship, with funds provided by the Carnegie Corporation of New York.

Ethical Declaration: This paper does not require ethical clearance as it is largely based on secondary data sources.

AI Declaration Statement: No generative AI tool was used in writing this manuscript.

References

Abegunde, O., and Fabiyi, R. (2020) "Nigeria-Benin border closure: Implications for economic development in Nigeria". *Journal of Humanities and Social Sciences Studies, 2*(4), 55-68.

Acharya, A. (2025) "The decline of the West and the rise of 'the Rest' will lead to a new world order" The World Today (Chatham House), Accessed on April 30, 2026, from: https://www.chathamhouse.org/publications/the-world-today/2025-09/decline-west-and-rise-rest-will-lead-new-world-order

Akinboye, S. (2013) "*Beautiful abroad but ugly at home: Issues and contradictions in Nigeria's foreign policy"*. University of Lagos Press.

Alexandroff, A and Cooper, A. (2010) "*Rising states, rising institutions: challenges for global governance"*. Brookings Institution Press.

Allison, G. (2017) "*Destined for war: Can America and China escape Thucydides' trap"?* Houghton Mifflin Harcourt.

Alufoge, O., and Duruji, M. (2020) "Multinational Joint Task Force's fight against insurgency in the Lake Chad Basin Region". *WSEAS Transactions on Environment and Development, 16,* 794-801. https://doi.org/10.37394/232015.2020.16.80

Babangida, I. (2025) "*A journey in service: An autobiography"*. Bookcraft.

Chidozie, F., Osimen, G., and Newo, O. (2024) "Sustainable development goals implementation in a post-colonial African state: Any future for the African Continental Free Trade Area"? *Sustainable Development, 33*(1), 1479-1490.

Ezepue, E. (2020) "The new nollywood: Professionalization or gentrification of cultural industry". *Sage Open, 10*(3). https://doi.org/10.1177/2158244020940994

Folarin, S., Ibietan, J., and Chidozie, F. (2016) "Nigeria and the BRICS: Regional dynamics in emerging economies' studies" *Journal of South African Business Research*, DOI: 10.5171/2016.808520

Garba, J. (1987) "*Diplomatic soldiering: Nigerian foreign policy, 1975-1979"*. Spectrum Books.

Global Firepower, (2026) "2026 Nigeria military strength". Accessed on April 20, 2026, from: https://www.globalfirepower.com/country-military-strength-detail.php?country_id=nigeria.

International Monetary Fund. (2025) "World economic outlook, October 2025: Global economy in flux, prospects remain dim". Accessed on June 15, 2026, from:https://www.imf.org/en/publications/weo/issues/2025/10/14/world-economic-outlook-october-2025

Jaafar, B. (2025) "*Polarization in the international relations literature. In: Middle East geopolitics and the rise of multipolarity".* Global Power Shift. Springer, Cham.

Manicom, J., and Reeves, J. (2014) "Locating middle powers in international relations theory and power transitions". In B. GILLEY & A. O'NEIL (Eds.), *Middle Powers and the Rise of China*. Pp. 23-44. Georgetown University Press.

Mearsheimer, J. (2014) "*The tragedy of great power politics"*. WW Norton.

Mingst, K., McKibben, H., and Arreguín-Toft, I. (2018). "Essentials of international relations (8th ed.)". W. W. Norton & Company.

Modelski, G. (1987) "*Long cycles in world politics"*. University of Washington Press.

Nwangwu, C. (2024) "Nigeria's 4-D diplomacy and regional integration in West Africa: A peacebuilding debacle?" *Peace Review, 36*(4) 754-768,

Nye, J. (2008) "Public diplomacy and soft power". *The Annals of the American Academy of Political and Social Science*, *616*, 94-109.

Nye, J. (2022) "Soft power: the origins and political progress of a concept". *The Journal of International Communication*, *28*(1), 1–7.

Ogunnubi, O., and Awosusi, O. (2022) "Nigeria's 'Border Diplomacy': Rhetoric or Substance for Regional Hegemonic Leadership?" *Global Society*, *36*(4), 562–577.

Oladoyin, A., Pokubo, I. and Osimen, G. (2024) "Artisanal petroleum refining and health security in Rivers State, Nigeria", *Heritage and Sustainable Development*, 6(2), pp. 589–604. doi: 10.37868/hsd.v6i2.584

Oni E., Fajobi M., Obafemi P. and Okunade S. (2026) "Global divestment of international oil companies: beyond the Nigerian experience". Front. Polit. Sci. 8:1769928. doi: 10.3389/fpos.2026.1769928

Onuoha, F. (2019) "Nigeria and the quest for a permanent seat at the United Nations Security Council". Journal of African Foreign Affairs, 6(1), 1-16.

Organski, A. (1958) "*World politics"*. Alfred A. Knopf.

Osaghae, E. (1998) "*The crippled giant: Nigeria since independence"*. Indiana University Press.

Oshewolo S. (2019) "Major contentions on Nigeria's afrocentric policy". *India Quarterly, 75*(3),1-15.

Osimen, G, Obiyan, A, Ayankoya, A, & Essien, N. (2024) "Nigeria's quest for a permanent seat at the United Nations Security Council: A giant dwarfed of domestic challenges". *Migration Letters, 21*(3), 808–820.

United Nations. (2024) "World population prospects 2024. Department of economic and social affairs, Population Division". Accessed on April 13, 2026, from: https://population.un.org/wpp/

Urio, P. (2024) "*The acceleration of the making of the new multi-polar world: China's strategy at its best"*. In: *China: From poverty to world power.* Springer, Singapore.

Artisanal Sand Mining, Local Power Structures and Resource Governance in Nigeria

Michael Ayobami Fajobi, Fadeke Esther Olu-Owolabi, Felix Chidozie and Moses Metumura Duruji

Department of Political Science and International Relations, College of Leadership and Development Studies, Covenant University, Ota, Nigeria

michael.fajobi@covenantuniversity.edu.ng
fadeke.owolabi@covenantuniversity.edu.ng
felix.chidozie@covenantuniversity.edu.ng
moses.duruji@covenantuniversity.edu.ng

Abstract: Rapid urbanisation and infrastructure development have transformed artisanal sand mining into one of the growing extractive activities in Nigeria. While existing studies have progressively documented the dire environmental implications of sand mining, there is a dearth of research on the political processes through which access to the resource is negotiated, controlled, and regulated. To this end, this paper examined the synergy between sand mining, local power structures, and resource governance in Nigeria, explaining how informal actors at the community level influence sand mining governance and the consequences of these dynamics for sustainable resource governance. The paper adopted a qualitative research design solely based on secondary data sources. The collected data were further analysed using content analysis to analyse evidential documents relating to resource governance and institutional coordination within the sand mining sector. The paper argued that artisanal sand mining in Nigeria has transcended a livelihood activity to become a locally embedded political economy characterised by overarching conflicts over access, authority, and economic benefits. It was further revealed that although the Nigerian Minerals and Mining Act 2007 provides the formal legal framework for mineral governance, regulatory responses to artisanal sand mining remain constrained by institutional fragmentation, centralised administrative control over resources, and limited policy focus on the peculiarities of sand extraction. As a result, sand resource governance in Nigeria operates through an informal structure that shapes the extraction patterns beyond the effective control of statutory institutions. The paper concluded that strengthening resource governance in Nigeria requires systemic institutional reforms that recognise the local realities of artisanal sand mining while enhancing regulatory coordination across all levels of government. To this end, this paper recommended that there should be a comprehensive review of the Nigerian Minerals and Mining Act 2007 to accommodate explicit regulatory provisions for artisanal sand mining with greater participation of state and local governments in monitoring and enforcement of sand extraction in the country thereby facilitating intergovernmental and interagency collaboration among the Federal Ministry of Solid Minerals Development, the Federal and State Ministries of Environment, and the Environment and Sanitation Departments of the Local Governments. This paper contributes to the emerging literature on natural resource governance by reconceptualising artisanal sand mining as a political economy and resource governance issue rather than a mere environmental or ecological concern. It further contributes to amplifying SDG 16, which advocates peace, justice, and strong institutions.

Keywords: Artisanal sand mining, Nigerian Minerals and Mining Act, Political economy, Resource control, Resource governance, Sustainable development goals

1. Introduction

Sand has emerged as one of the most critical natural resources supporting rapid urbanisation and economic growth in peri-urban areas. It is the most important aggregate in concrete, asphalt, glass, land reclamation, and other building materials, and plays an irreplaceable role in the construction of houses, roads, and railways, as well as in industrial expansion (Hemmler et al., 2024). With the unprecedented rate of urbanisation worldwide, sand has become one of the most mined solid resources in the world (Bendixen et al., 2023; UNEP, 2022).

Previous studies have progressively documented the environmental impacts of sand extraction. Empirical studies in Asia, Europe and Latin America clearly show that unsustainable sand mining leads to erosion of riverbanks, loss of biodiversity, groundwater depletion, land degradation, and increased exposure to flooding (Mia, 2026; Tra et al., 2025; Park, 2024; Yang & Ho, 2019). In furtherance of this, sand has transformed into a natural resource of strategic importance that is increasingly recognised as requiring more coordinated governance, both within and across countries (UNEP, 2022). However, while there is now a growing body of literature on the ecology of sand resources, there has been relatively little focus on the politics of access to sand resources and on how this access is negotiated, controlled and contested, especially in environments with weak regulatory institutions.

In this context, sand mining is often not just an economic pursuit but also an integral part of intricate local political dynamics that involve traditional leaders, customary landowners, community elites, youth groups, and

informal interest groups. The actors frequently have significant influence over access to mining sites, rent collection, dispute resolution, and the day-to-day regulation of extraction activities, often without the involvement of formal state institutions or alongside them (Akanwa & Idakwo, 2025). This leads to a hybrid governance system in which statutory rules and regulations coexist with informal rules of authority.

Nigeria is a country that exhibits these dynamics. Over the years, the country has experienced continuous urbanisation and a growing need for housing and infrastructure investment, which has greatly enhanced the commercial value of sand as a construction resource. In numerous communities, most of which are in peri-urban areas undergoing urbanisation, artisanal sand mining has become an important source of livelihood and local income generation (Aliu et al., 2022).

Generally, mining governance in Nigeria falls under the exclusive legislative list, which gives the national government sole rights over extractive resources in the state. The Nigerian Minerals and Mining Act 2007, which repealed the Minerals and Mining Act, No. 34 of 1999, is the principal Act regulating mining in the country. However, access to mining sites is often negotiated through complex chains of local actors, including artisanal miners, customary landowners, traditional rulers, youth groups, local elites and informal revenue collectors. These groups can influence access and control over the resources. They are actors who negotiate extraction rights, collect informal rents, resolve conflicts, and exercise varying levels of control over mining areas, and undertake governance functions typically reserved for the state (Abe, 2022).

The implication is that there is a need to examine how local power structures influence patterns of resource control and regulatory outcomes, to complement existing knowledge of the environmental impacts of sand mining in Nigeria. Against this background, this paper explores the nexus among sand mining, local power relationships, and resource governance in Nigeria. In particular, the paper examines the local coalitions of actors involved in the governance of sand mining and the ways in which informal networks of authority shape, mediate, challenge, or, in certain cases, undermine formal regulatory bodies governing sand mining.

This paper highlights the importance of considering the political dimension of artisanal sand mining and argues that an effective statutory approach to resource governance is needed to address unsustainable mining practices in resource-rich communities. Furthermore, this paper aligns with Sustainable Development Goal 16 (peace, justice, and strong institutions) and is situated within the broader debate on resource governance and local political authority, as well as on the capacity of formal state institutions to better connect to community-level governance bodies for the management of increasingly strategic natural resources.

2. Review of Related Literature

This section presents a review of the related literature to unravel the extent to which existing studies have addressed power dynamics in natural resource governance. In Nigeria, this subject has attracted contributions from diverse fields of study, with crude oil governance and control emerging as the dominant focus in previous studies. In light of this, this section will review relevant conceptual and empirical studies to situate this paper within existing scholarship.

2.1 The Concept of Artisanal Sand Mining

The surge in global demand for sand has led to unchecked extraction practices, leading to ecological degradation, loss of biodiversity, riverbank erosion and rising governance issues, especially in developing states. Artisanal sand mining is a type of small-scale sand mining, which is relatively labour-intensive and practised by individuals or local groups using basic tools and unsophisticated mechanisation. Artisanal sand mining is different from industrial-type mining, which is more formal and technologically advanced. It is rampant in local communities where it is often used as a livelihood coping strategy due to sparse employment opportunities (Abdulai et al., 2025). Artisanal sand mining plays a major role in creating jobs in local communities and provides raw materials for the construction sector; however, in many developing countries, informal extraction is expanding due to the lack of regulation (Mia et al., 2026). Therefore, in the context of this paper, artisanal sand mining is the extraction of sand on a small scale by local actors in such a way that access to sand and the pattern of extraction are influenced both by statutory regulations and the governance system at the community level.

2.2 Resource Governance and Resource Control

While they are often used interchangeably, resource governance and resource control are two different analytical concepts. Resource control broadly refers to the right to define ownership, access, and benefits from natural resources. In Nigeria, the idea has mostly been linked to issues of oil resource ownership and how oil revenues are shared between the Federal Government and the oil-producing states. Conversely, resource

governance refers to the broader institutional framework through which natural resources are governed (Orogun, 2010). It transcends ownership to encompass the formulation of resource management policies, institutional coordination, regulatory oversight, environmental compliance, stakeholder engagement, and accountability mechanisms, all of which help to determine the outcome of resource management.

This paper focuses on resource governance as its main analytical lens, offering a more comprehensive approach to understanding the political economy of sand mining. This paper, therefore, conceptualises sand resource governance as the statutory institutional processes, policy structures, and mechanisms that govern mining by state institutions.

2.3 Local Power Structures

Local power structures are perceived as a systemic circle of groups, and institutions that have power to influence decisions, allocate resources and shape social order, within a community. This structures often bypass formal political authority recognised by statutorily, as it can be established through customary institutions, traditional leadership, and economic influence with an existing community connection. Previous studies indicate that local power dynamics are crucial in the governance of natural resources in terms of who has access and benefits from the resources and how conflicts are resolved within the local community **(**Amusan & Sowale, 2026; Saka, 2025**)**. These are often overlapping or in some cases, replacing formal state institutions in natural resource governance in many resource dependent communities.

In the context of this paper, local power structures are the set of actors that operate within the community who influence sand mining governance in Nigeria. These range from traditional rulers, land custodians, community leaders to other local elites, who have varying degrees of influence on the access to mining sites and organisation of mining activities in the community. This knowledge serves as the basis for analysing the relationship between informal community authority and formal state control in Nigeria's sand mining industry.

2.4 Empirical Studies on Sand Mining and Resource Governance

Previous studies on sand mining have predominantly focused on the environmental implications, including riverbank erosion, biodiversity loss, and degradation of landscapes. Some studies have also examined its implications for food security (Amusan & Sowale, 2026; Hemmler et al., 2024; Park, 2024).

Gavriletea (2017) highlighted that the demand for sand in developing countries is increasing at a much faster rate than regulatory response, leading to environmental degradation and institutional challenges. From a socio-economic perspective, Aliu et al. (2022) revealed that despite the role sand mining plays in promoting urban growth and employment in Lagos, Nigeria, it also has severe environmental impacts and sustainability issues for the communities.

Collectively, these studies have highlighted sand mining as an environmental governance challenge across the globe, focusing on ecological sustainability rather than local power structures that shape access to sand resources and their governance. However, in relation to this paper, Hougaard and Vélez-Torres (2020) agreed that the formal and informal regulation of sand mining goes beyond environmental regulation, and that legal institutions and competing claims to sand sites also affect sand mining practices. Consequently, the governance of sand mining is often examined from an environmental management standpoint, while significantly less attention is paid to the political economy of sand mining and the institutional processes that influence resource governance at the community level. The present paper aims to address this gap by analysing the local power structures often involved in community-based resource governance.

3. Methodology

This paper adopted a qualitative research design with secondary sources of data collection from peer-reviewed journals, books, internet sources, and official documents. The researchers sourced these documents using, SCOPUS, Google Scholar, Springer Nature, and the Web of Science database. The credibility of the authors of the cited documents and the outlets where they were published are the primary criteria for selecting documented sources. The paper also adopted content analysis to analyse evidential documents relating to sand mining and the challenges of resource governance in Nigeria. By synthesising insights across these existing studies, the methodology enables a holistic understanding of sand mining, local power structure, and resource governance in Nigeria.

3.1 Local Power Structures and the Political Economy of Sand Mining in Nigeria

The demand and significance of sand resources have altered the extractive process across many Nigerian communities. Prior to its growing demand and commercialisation, sand was often perceived as a common natural resource with little economic relevance, but in contemporary times, it has emerged as a driver of local competition, negotiation and accumulation. This is evident in its exchange value increasing, thereby turning diverse extraction regions into sites of contestation over economic interests, and competing claims to authority, ownership and territorial control. The resultant effect of these struggles for resource control is that sand mining governance has extended beyond statutory regulatory provisions to include a network of informal relations in which the rights to access mineral resources are negotiated and maintained by informal power structures within resource-rich communities (Abdulai et al., 2025)

Artisanal sand mining takes place in a fragmented governance landscape with decentralised authority, as opposed to large-scale mining, where the actors have direct engagement with the state and have clear regulatory processes. Formal institutions only dictate who is allowed to extract sand through the issuance of operational licenses, where extraction should occur, and the conditions for extraction (Adeyemi et al., 2023). On the contrary, the reality across diverse mining communities in Nigeria, is that a complex chain of local actors exists whose power derives from customary legitimacy, social recognition, economic power, and territorial presence (Oyewo, 2026). The implication is that this hybrid form of sand governance coexists with formal structures of resource administration, thereby undermining the state's effectiveness in controlling its resources and contradicting the general objectives of SDG 16.

More specifically, the informal governance system is centred on the customary landowners, traditional institutions, community elites, youth groups, artisanal miners, heavy truck transport operators and other local intermediaries whose interests intersect in the economic opportunities offered by sand extraction. These actors play varying roles in the resource economy but are interlinked by reinforcing relationships. Empirical evidence from Amusan and Sowale (2026) revealed that landowners often released their land for mining purposes rather than utilising it for agricultural use. Perhaps another issue in sand governance in Nigeria is informal revenue collection by the indigenous people in extraction areas. In the case of diverse mining sites across Southwestern Nigeria, these indigenous local power structures often position themselves as land custodian with a widely known appellation "omo onile" in local parlance, which means "the owners of land". A crucial issue associated with informal revenue collection is its propensity to spark communal clashes between this group, the local people affected by the environmental impacts of sand mining, and the artisanal miners who are exploiting the earth resources at an alarming rate (Saka, 2025).

Another category of existing local power structures in sand governance in Nigeria are traditional institutions within mining communities. The traditional rulers often act as mediators in conflict resolution, they may sometimes back miners in return for sand royalty, while youth groups and some residents are usually employed in the extractive processes as sand loaders (Akanwa, & Idakwo, 2025). Put together, this suggests that, despite its undesirable environmental implications, sand mining has economic benefits as it supports the people's livelihoods. In addition, heavy truck transport operators are a key part of this informal power network, connecting extraction sites to urban construction markets, ensuring industry commercial viability. All these actors together form an informal power structure that relies less on statutory authority but on reciprocal interests. The relationship between these actors shows that control over resources in artisanal sand mining goes beyond the legal land ownership or statutory mining rights. In reality, resource governance is exercised through the ability to determine access, enforce compliance with informal negotiated rules, collect sand rent, adjudicate disputes resulting from communal clashes with sand mining operators, and manage participation in extraction activities. In this sense, sand governance is always maintained through routine interaction of social relations, rather than solely through formal rules by state institutions. Resource control is thus local in nature, often secured through customary norms, historical land claims, social influence or the capacity to muster community support (Chukwudi & Owoh, 2024).

By implication, this power structure is widely observed in informal resource governance across many developing societies, especially in sub-Saharan Africa, where the de facto distribution of authority often deviates from the formal institutional and regulatory framework. Although in the Nigerian context, the Nigerian Minerals and Mining Act 2007 gives the Federal Government the power to regulate the use of mineral resources, the coordination of artisanal mining shows that control over the extraction process is often negotiated at the community level. While formal institutions can help establish the legal framework for resource governance, the day-to-day practice of resource extraction is often decided by local actors who have a better understanding of

the local dynamics, territorial boundaries, customary institutions, and informal enforcement mechanisms (Akpoghome & Nwano, 2025). The formal and informal power structures have major implications for the political economy of sand mining. Instead of being mutually incompatible in all cases, they may become related in an accommodative and mutually dependent pattern. This institutional hybridity blends a formal state regulatory framework with informal or indigenous structures.

The above analysis of local power structures shows that resource governance in Nigeria's artisanal sand mining sector involves locally embedded power dynamics and diverse interests over access to and control of resources. Sand mining sites are thus arenas characterised by the intersection of state institutions, customary authority, community interests and private economic incentives, which are constantly reshaping the notion of resource governance. It is important to understand these local power arrangements to explain why formal regulatory measures often face implementation challenges even when detailed legislation is enacted to manage mineral resources. In this context, issues of institutional effectiveness and resource control are pertinent to comprehending the governance of artisanal sand mining in Nigeria.

3.2 Resource Governance and Institutional Responses to Sand Mining in Nigeria

The institutional architecture of resource governance in Nigeria is highly centralised, with ownership, administration and regulation of mineral resources being the constitutional mandate of the Federal Government through diverse specialised regulatory bodies. The overall legal framework governing mineral exploration, environmental obligations, licensing procedures, and institutional responsibilities in Nigeria is established by the Nigerian Minerals and Mining Act 2007. The governance framework in the Act, while technically broad in scope, has received relatively little scholarly or policy debate regarding artisanal sand mining, which is now prevalent across the country.

Institutional governance of mineral mining in Nigeria is complex, with multiple agencies involved at various stages of resource management. The Federal Ministry of Solid Minerals Development is tasked with the administration and licensing of minerals, while the Federal Ministry of Environment oversees environmental impact assessment surrounding extraction activities (Akpoghome & Nwano, 2025).

At the sub-national level, State Ministries of Environment are responsible for environmental monitoring and pollution control tasks in their respective areas, while the local governments have functions related to environmental sanitation and community administration (Ogunnubi, 2022). These institutions have different statutory powers; however, the governance of artisanal sand mining is often interdependent among them. One notable limitation of the Mining Act is its inability to expressly address artisanal sand mining; the existing institutional structure poses a significant governance challenge. Sand mining governance involves a range of policy domains, including mineral resource management, environmental management, land-use planning and local development. As a result, regulatory effectiveness depends more on how well institutions' mandates are incorporated into an integrated governance framework. When institutions have limited responsibilities, regulatory actions focus on addressing individual aspects of extraction, rather than the socio-economic and environmental realities of artisanal mining. Resource governance consequently becomes uncoordinated, with administrative functions spread across several institutions with varying priorities and arrangements for operating and managing the resources (Gbadebo, 2025).

Compounding this is the unique characteristic of the artisanal sand mining industry. Artisanal sand extraction is highly decentralised, geographically dispersed, relatively small-scale, and can grow quickly when demand arises. These strains traditional regulatory frameworks, engineered around more formalised models of mineral extraction. Monitoring and enforcement of sustainable mining practices can become costly and cumbersome, leading to environmental and social consequences for host communities (Saka, 2025).

The other significant constraint in the current institutional configuration is the limited policy orientation that specifically acknowledges artisanal sand mining as a unique governance and environmental issue. Sand mining is predominantly localised and community-based and has largely driven domestic demand for sand and gravel for construction projects, as compared to high-value mineral resources like crude oil, which benefit national economies through export revenues and are subject to more regulatory oversight (Oladoyin, Pokubo, & Osimen, 2024). However, its overall environmental, economic and governance effects are growing at an alarming rate as many regions in Nigeria continue to experience rapid urbanisation (Pokubo, Osimen & Oladoyin, 2026). This governance gap indicates a need for a stand-alone policy to effectively address the sustainability of sand extraction in Nigeria.

From a resource-governance perspective, the institutional constraints analysed in the foregoing indicate a broader policy gap regarding the distribution of regulatory powers in the Nigerian federal system. While in principle, mineral resources are part of the Exclusive Legislative List, in practice, the impact of artisanal sand mining is felt much more at the state and community levels where it is carried out. This results in an institutional imbalance, where the government, constitutionally tasked with mineral governance, is not necessarily the institution best suited to engage in regular monitoring, quick response or continued community dialogue. The above analysis has shown that the governance of artisanal sand mining is not limited by a lack of laws but by the ability to adapt to changing circumstances in local resource extraction. Therefore, better vertical intergovernmental coordination among Federal, State, and Local governments is essential to ensuring effective resource governance regarding sand mining rather than a rigid centralised regulation.

4. Conclusion and Policy Recommendations

This paper has maintained that the governance of artisanal sand mining is not solely about the environment and mineral extraction, but also involves other concerns of local authority, resource control and institutional efficacy in Nigeria. Beyond the extensive focus on environmental implications of sand mining in existing literature, this paper shows that the prevalence of the unregulated extraction practice is also a product of informal local power relations and a regulatory system that has been ineffective in countering community-based resource extraction. There is therefore a need to shift the focus from ecological assessments to an understanding of the political and institutional dynamics of resource governance in Nigeria.

In addition, the analysis reveals the fact that Nigeria has a formal legal and institutional structure for mineral governance, which, however, is not fully geared to the specific nature of artisanal sand mining. The allocation of regulatory powers to the central government, the lack of institutional control, and the policy framework for the control of sand extraction have collectively limited effective resource governance. The analysis also indicates that effective environmental governance would require institutional reforms that account for artisanal sand mining.

Based on the above, the following policy recommendations are made. First, the Nigerian Minerals and Mining Act, 2007 must be comprehensively reviewed by the National Assembly of Nigeria in collaboration with the Federal Ministry of Solid Minerals Development, with a view to introducing a detailed provisions on artisanal sand mining rather than the existing Acts that categorise mining generically. It should include more specific policies on sand mining licensing, environmental responsibilities, site rehabilitation, monitoring, and sanctions for non-compliance to address the current policy void on sand mining.

Secondly, the Federal Government of Nigeria should accommodate the state and local governments to legislate on mining rather than performing the role exclusively, considering the fact that extraction activities usually take place in the local community, it is believed that the institutional framework should provide a clear distribution of the regulatory responsibilities to the state and local authorities, which are carried out in cooperation with the federal authorities, thereby facilitating routine control of extraction activities, speeding up the response to violations, and improving environmental compliance, while not reducing the overall level of national supervision of mineral resources.

Lastly, there is a need to enhance the enforcement of regulations by strengthening the institutional relationships among the Federal Ministry of Solid Minerals Development, the Federal Ministry of Environment, State Ministries of Environment and local government environmental departments. The development of coordinated monitoring systems, joint inspection exercises, and integrated monitoring and compliance systems would diminish institutional fragmentation and enhance the regulatory bodies' ability to address the environmental and governance issues arising from artisanal sand mining. These collaborative strategies would not only enhance sustainable sand extraction practices but also foster resource governance that aligned with Sustainable Development Goal 16. If these are not put in place, it is likely that the existing regulatory structure and governance of sand resources will remain a mismatch, with dire consequences for environmental management, community development and sustainability of Nigeria's extractive industry.

Acknowledgement

The authors gratefully acknowledge Covenant University, Centre for Research, Innovation, and Discovery (CUCRID), for supporting the conference and the publication of the proceedings registration fee. We also express our sincere gratitude for the support of the Social Science Research Council's African Peacebuilding and

Development Dynamics Doctoral Dissertation Proposal Fellowship, with funds provided by the Carnegie Corporation of New York.

Ethical Declaration: This paper does not require ethical clearance as it is largely based on secondary data sources.

AI Declaration Statement: No generative AI tool was used in writing this manuscript.

References

Abdulai, I., Enu-Kwesi, F., and Issahaqu, S. (2025). "Sustainability outcomes of sand and stone mining practices in peri-urban Ghana". *Journal of Planning and Land Management*, *4*(1). https://doi.org/10.36005/jplm.v4i1

Abe, O. (2022). "Local content requirements in Nigeria's extractive sector and the implications for sustainable development". *Journal of African Law*, *66*(1), 73-96.

Adeyemi, O., Onu, K., Joseph-Hunvenu, M. and Adeyemi, O. (2023) "Legal framework for solid minerals ownership and control in Nigeria". *International Review of Law and Jurisprudence (IRLJ)*, *5*(1), 83-88.

Akanwa, A., and Idakwo, V. (2025). *Voices for river rights: Monitoring the effects of sand mining in Ethiope river, Nigeria from 1991 to 2020 using remote sensing/GIS*. In *Remotely Sensed Rivers in the Age of Anthropocene*. Cham: Springer Nature Switzerland, 11-35.

Akpoghome, T., and Nwano, T. (2025) "Evaluating the legal framework on sand mining in Nigeria: challenges and prospects". *KAS African Law Study Library*, *11*(4), 554-577.

Aliu, I., Akoteyon, I., and Soladoye, O. (2022) "Sustaining urbanisation while undermining sustainability: the socio-environmental characterisation of coastal sand mining in Lagos Nigeria". *GeoJournal*, *87*(6), 5265–5285. https://doi.org/10.1007/s10708-021-10563-7

Amusan, L., and Sowale, A. (2026) "Actors, drivers, and implications of Chinese–Nigerian sand mining nexus for food security in Ogun State, Nigeria". *African Security Review*, *35*(1), 123–144. https://doi.org/10.1080/10246029.2025.2550631

Bendixen, M., Noorbhai, N., Zhou, J., Iversen, L., and Huang, K. (2023) "Drivers and effects of construction-sand mining in Sub-Saharan Africa". *The Extractive Industries and Society*, *16*, 101364. https://doi.org/10.1016/j.exis.2023.101364

Chukwudi, C., and Owoh, E. (2024) "An assessment of the impacts of community development initiatives in Awgbu Town in Anambra State, Nigeria". *Research Journal in Advanced Humanities*, *5*(4). https://doi.org/10.58256/tjgan262

Gavriletea, M. (2017). Environmental impacts of sand exploitation. Analysis of sand market. *Sustainability*, *9*(7), p.1118.

Gbadebo, A. (2025). "Political Economy of Resource Management and Environmental Governance: An Empirical Analysis of Nigeria". *Humanities and Social Sciences*, *32*(4), 57-68.

Hemmler, K., Asare, K., Tenkorang, E., and Buerkert, A. (2024) "Sand mining deteriorates soil fertility and farming livelihoods around Accra, Ghana". *Scientific reports*, *14*(1). https://doi.org/10.1038/s41598-024-66656-z

Hougaard, I. and Vélez-Torres, I. (2020). Shifting sands: Legal dispossession of small-scale miners in an extractivist era. *Geoforum*, *115*, pp. 81 -89.

Mia, M., Karikar, B., Mohibul, S., Ali, M., Khanam, N., and Siddiqui, L. (2026) "Environmental and Socio-economic Impacts of River Sand and Gravel Mining: A Review". *Environmental management*, *76*(3), 76. https://doi.org/10.1007/s00267-025-02370-4

Ogunnubi, O. (2022) "Decentralisation and local governance in Nigeria: issues, challenges and prospects". *Commonwealth Journal of Local Governance*, (27), 5-16.

Oladoyin, A., Pokubo, I. and Osimen, G. (2024) "Artisanal petroleum refining and health security in Rivers State, Nigeria", *Heritage and Sustainable Development*, 6(2), pp. 589–604. doi: 10.37868/hsd.v6i2.584

Orogun, P. (2010). Resource control, revenue allocation and petroleum politics in Nigeria: the Niger Delta question. *GeoJournal*, *75*(5), pp.459-507.

Oyewo, D. (2026, February 23). Residents protest mining in Ogun community over environmental risks. *The Punch*. Accessed on June 28, 2026, from: https://punchng.com/residents-protest-mining-in-ogun-community-over-environmental-risks/

Park, E. (2024). "Sand mining in the Mekong Delta: Extent and compounded impacts". *Science of The Total Environment*, *924*, 171620. doi:10.1016/j.scitotenv.2024.171620

Pokubo, I., Osimen, G. and Oladoyin, A. (2026) "Illegal petroleum refining and health security in the global community" Social Sciences & Humanities Open, 13, 102069, https://doi.org/10.1016/j.ssaho.2025.102069.

Saka, L. (2025) "The sand curse: sand mining, environmental degradation and social conflicts in The Gambia". *World Development*, *195*, 107125. doi:10.1016/j.worlddev.2025.107125

Tran, T., Tra, N., Nguyen, D., Nguyen, K., Huynh, C., and Nguyen, T. (2025) "The impact of sand mining on the bed morphology of the Tien River, Mekong Delta, Vietnam". *Environmental Earth Sciences*, *84*(4), Article 108. https://doi.org/10.1007/s12665-024-12079-y

United Nations Environment Programme. (2022). Our use of sand brings us "up against the wall", says UNEP report. Press release. Accessed on June 28, 2026 from: https://www.unep.org/news-and-stories/press-release/our-use-sand-brings-us-against-wall-says-unep-report

The Future-self Effect: How Veteran Welfare Shapes Organizational Commitment among Serving Military Personnel

Mark Peter Jatau, Daniel Eseme Gberevbie and Ugochukwu David Abasilim
Department of Political Science and International Relations, College of Leadership and Development Studies, Covenant University, Ota, Nigeria

mark.peterpgs@stu.cu.edu.ng
daniel.gberevbie@covenantuniversity.edu.ng
ugochukwu.abasilim@covenantuniversity.edu.ng

Abstract: This paper introduces and develops the future-self effect as a conceptual mechanism through which serving military personnel interpret the welfare experiences of retired veterans. It serves as an anticipatory signal about their own organizational futures. This study employs qualitative data gathered from serving personnel across the Nigerian Army, Navy and Air Force. The paper employs thematic analysis informed by constructivist grounded theory procedures to examine how observations of veteran welfare inform organizational commitment, trust in leadership, morale and career intentions. The study is situated within an interpretivist epistemological stance and adopts a qualitative case study design. The researcher, a serving military officer, occupies an insider position and the paper addresses the attendant methodological implications through reflexive practice and structured analytical procedures. The findings reveal five interconnected themes (1) The awareness serving personnel have of veteran welfare conditions. (2) The construction of veterans as future-selves through which serving members project and evaluate their own anticipated post-service lives. (3) The interpretive process by which welfare signals generate or erode institutional trust. (4) The consequent effects on motivation, morale and commitment. (5) The emergence of adaptive career strategies as anticipatory responses to perceived neglect. Theoretically, the paper integrates the possible selves theory, the social learning theory, the social identity theory and the organizational commitment theory to explain these processes. The paper argues that veteran welfare is an ongoing organizational signal with real-time implications for serving personnel's psychological contracts, institutional attachment and retention. The future-self effect extends beyond the military context and holds implications for police forces, academia, healthcare and other hierarchical professions characterized by long tenure, deferred rewards and strong occupational identity.

Keywords: Future-self effect, Organizational commitment, Psychological contract, Veteran welfare, Institutional trust, Nigerian Armed Forces

1. Introduction

Organizations routinely communicate their values to members through formal policy statements and leadership pronouncements. Crucially, they do so through the lived experiences of those who have passed through their ranks. In hierarchical institutions such as the military, police services, healthcare systems or even academic institutions, the observable condition of retired or former members constitutes a form of institutional autobiography. This becomes an unmediated account of what membership eventually yields. How serving members interpret and internalize that autobiography has remained insufficiently examined in the organizational behavior and human resource management literature.

The existing literature on veteran welfare attends mostly to the post-service outcomes of veterans such as employment transitions, mental health, housing and social reintegration (Dandeker et al, 2006; Hoge et al, 2004). A parallel body of work on organizational commitment in the military examines predictors and consequences of attachment among serving personnel (Griffith 2008; Soeters et al, 2006). These two streams, however, rarely speak to each other. This omission is particularly consequential in security institutions where long-term sacrifice is exchanged for deferred institutional rewards. Yet, the question of whether and how veterans' observable welfare conditions inform the organizational attitudes of currently serving personnel has not been considered.

The objectives of this paper are to develop and theorize the future-self effect as an emerging conceptual framework. Then secondly, to ground that framework in empirical qualitative data gathered from Nigerian serving military personnel. The paper contributes to organizational behavior scholarship by introducing the future-self effect as a conceptual mechanism that links post-employment welfare signals to present-tense organizational attitudes. It links several theories (which we shall discuss shortly) to demonstrate that contract evaluation occurs in response to direct organizational treatment, as well as, and perhaps even more so, through the observed treatment of former members.

2. Literature Review

Organizational Commitment and Military Service

Meyer and Allen (1991) theorize organizational commitment as the degree of psychological attachment an individual maintains toward an employing organization. Their three-component model distinguishes affective commitment (emotional attachment), continuance commitment (cost-based calculation) and normative commitment (sense of obligation). Griffith (2008) extends this framework to military contexts. His study noted that commitment in armed forces settings is complicated by the unique nature of the employment relationship. This is due to the expectation of risk in laying one's life, which by the way, is the totalizing character of military life. Notwithstanding Griffith's (2008) work, like much of the military commitment literature, it tends to focus on contemporary organizational conditions, such as mission meaningfulness and working conditions as drivers of commitment. The anticipatory dimension, in which expected future organizational treatment influences present commitment, receives scant attention.

Psychological Contract and Perceived Organizational Support

The psychological contract, or the set of implicit, subjective expectations that employees hold about the terms of their exchange with the organization, offers an important way to understand organizational commitment (Rousseau 1989, 1995). When the organization is perceived to have honored its side of the contract, commitment and performance are reinforced. However, when the contract is violated or when promises are seen to have been broken, it erodes trust and disengagement follows (Morrison and Robinson, 1997). Perceived organizational support (POS), as popularized by Eisenberger et al (1986), is a related construct that refers to the degree to which employees believe the organization values their contributions and cares about their wellbeing. Critically, both schools of thought tend to focus on the individual's direct experience of organizational treatment (see Abasilim et al, 2019). Less attention has been paid to the possibility that contract evaluations may be made from what the organization does to comparable others, particularly former members whose post-service experiences constitute a preview of what membership ultimately delivers.

Organizational Signaling and Meaning-Making

Organizations communicate through multiple channels and most times, not all of them are intentional. Organizational signaling was originally developed in economic contexts from Spence's (1973) doctoral thesis. It has been applied in HR and management research to understand how organizations convey information about their values, priorities and trustworthiness and how these influence recruitment (Abasilim et al, 2019; Abasilim 2024; Cable and Turban, 2003). The treatment of departing or retired members is, in this sense, a crucial signal because it is reflective of institutional behavior after the leverage of active membership has expired. Serving members who observe that veterans are poorly supported will rationally infer that the organization's commitments are instrumental and time-limited.

Veteran Welfare and Post-Employment Obligations

The literature on veteran welfare has grown substantially since the early 2000s. This is driven in part by the post-9/11 return of large numbers of service members from protracted conflicts in Iraq and Afghanistan (Hoge et al, 2004; Dandeker et al, 2006). This body of work documents the challenges veterans face in employment transitions, mental health management, physical rehabilitation, housing and social reintegration. Studies situated in the Nigerian context are comparatively scarce, though emerging work has begun to document the inadequacy of resettlement provisions and the economic vulnerability of retired Nigerian military personnel (Chidozie et al, 2025; Chukwu 2021; Gberevbie 2010; Jatau et al, 2026; Ojo 2021, 2026). What remains absent from this literature, however, is an analysis of the feedback effects of veteran welfare on currently serving personnel's organizational attitudes.

Military Organizational Culture and Identity

Military organizations are characterized by strong occupational cultures that inform identity, values and social world (Hockey 1986; Janowitz 1960). Service members typically internalize a military identity that persists beyond formal service. This is a process that Goffman (1961) describes as the "total institution" character of military life (cited in Soeters et al, 2006, p. 250). This cultural intensity means that the observable fate of veterans carries particular symbolic weight, particularly for those still in active service. Across these bodies of literature, a yawning gap is observable. Specifically, no existing framework accounts for the process by which serving personnel observe veteran welfare, construct veterans as future-selves and use those observations to evaluate the implicit long-term commitments of the institution. This paper develops the future-self effect to fill that gap.

3. Theoretical Framework

The Future-self effect draws on several theoretical traditions that, as a whole, account for the observational, social, identity and attitudinal dimensions of the process.

Possible Selves Theory

The theory of possible selves posits that individuals maintain cognitive representations of their current selves, as well as of selves they expect, hope for or even fear becoming (Markus and Nurius, 1986). These possible selves, therefore, serve as incentives and guides for present behavior. It enables individuals to evaluate current situations in light of anticipated futures. In the military context, veterans constitute credible possible selves that are observable instantiations of a future toward which serving members are moving. The quality of veteran welfare informs the valence of that possible self. Therefore, a veteran living comfortably and with dignity constitutes a hoped-for possible self. However, a veteran struggling with poverty, housing insecurity or neglected health conditions constitutes a feared one.

Social Learning Theory

Individuals learn from observing others, particularly those perceived as similar to themselves (Bandura and Walters, 1977; Bandura 1986). The process of adjusting one's behavior and expectations based on observed consequences experienced by others is a central thrust of this framework. Serving personnel occupy an observational position vis-à-vis veterans. They watch what happens when full military service is completed and draw inferences about what will happen to them. Where veteran welfare realities are negative, vicarious punishment is experienced. Moreover, where the outcomes are positive, vicarious reinforcement operates. This observational learning process influences serving members' dispositions including their commitment and motivational investment.

Social Identity Theory

Social identity theory (Tajfel and Turner, 1979) proposes that individuals derive part of their self-concept from membership in social groups and that perceived group status affects self-esteem and group-related behavior. Military service constitutes a crucial social identity that is maintained in part by the sense that the institution reciprocates the sacrifices that membership entails. When serving personnel observe that veterans are treated poorly, the positive distinctiveness of military identity is undermined.

Organizational Commitment Theory

Organizational commitment is the attitudinal outcome dimension within which this study's future-self effect operates (Meyer and Allen, 1991). The future-self effect engages continuance commitment, i.e., the calculative assessment of whether organizational membership is worth sustaining. As well as the affective commitment/the emotional bond to the institution. Negative veteran welfare signals increase the perceived costs of long-term institutional attachment (which reduces affective commitment). On the other hand, heightened awareness of what full service yields (increases continuance commitment that is usually driven by fear rather than loyalty). Normative commitment, the sense of obligation to remain, may be partially insulated from veteran welfare signals by contractual obligations, but the data suggest (as we shall soon discuss) that it, too, is affected when perceived institutional betrayal is severe.

Analytical Trajectory of The Future-Self Effect Thesis

The four theories operate in sequence within the future-self effect thesis. Social learning theory accounts for how serving personnel acquire knowledge of veteran welfare through observation and indirect experience. The possible selves theory explains the cognitive mechanism through which veterans are constructed as personally relevant future selves. Social identity theory illuminates the group-level dimension of this process. It explains why the institution's treatment of veterans is experienced as a statement about the institution's valuation of the entire military identity group. Organizational commitment theory provides the attitudinal dynamics in which these perceptions register as changes in commitment, trust, motivation, morale and career intentions.

4. Study's Methodology

Epistemological Positioning and Research Design

This study adopts an interpretivist epistemology that is rooted in the conviction that social phenomena are produced through the meanings that actors attach to their experiences and interactions (Creswell 2013). The

study adopts a qualitative case study design (Yin 2014). This design is appropriate here because the phenomenon of interest is located within a specific institutional and cultural context that the case study preserves.

Data Collection and Analysis

Data were gathered through semi-structured interviews with 15 serving military personnel across different career stages and service branches, such as the Nigerian Army, Navy and Air Force. Interviews lasted approximately 40 minutes each. Some questions asked include: How would you describe the welfare conditions you are experiencing and those of veterans? How do welfare conditions or their absence affect the morale of your unit or your colleagues? Thematic analysis, informed by constructivist grounded theory procedures such as open coding, focused coding, constant comparison and memo-writing (Charmaz 2006) was applied to the data. Saturation was achieved at interviewee 13.

It is important to clarify that this study is not a formal grounded theory study aimed at generating a substantive theory that meets all the canons of that methodology. Grounded theory's analytic procedures are employed in this study to ensure that themes are grounded in the data, that analysis moves from description toward conceptual abstraction and that theoretical development is disciplined by rigorous iterative engagement with the empirical material (Bryant and Charmaz, 2010).

Insider Positionality and Reflexivity

The lead and second coauthor are serving and retired military officers, respectively. This positionality carries both methodological advantages and risks that require reflexive attention (Njeri 2021, p. 392). On the upside, insider status facilitated access to participants who might otherwise have been guarded in the presence of an external researcher. Moreover, it enabled the researchers to understand the operational vocabulary and cultural nuances of military life without extensive prior familiarity. Importantly, it enabled a depth of contextual sensitivity in the interpretation of data that would have been difficult to achieve from outside the institution (Dwyer and Buckle, 2009; Mercer 2007).

These notwithstanding, insider research carries genuine risks of confirmation bias, over-identification with participants and the analytical foreclosure that comes from assuming shared meaning. The researchers maintained a reflexive journal throughout the study in order to manage this risk. We equally employed member-checking practices and subjected emerging themes to interrogation against the full data corpus. The theoretical framework was introduced after initial coding was completed. This ensured that conceptual development remained grounded in the data and not in prior theoretical commitments.

5. Findings and Analysis

Thematic analysis of the interview data yielded five themes. These themes are presented as analytically distinct and mutually reinforcing dimensions of a single underlying process of the future-self effect.

General Awareness of Veteran Welfare Conditions

Participants demonstrated a detailed and often visceral awareness of the welfare conditions experienced by retired veterans. This awareness was derived from direct observation in the barracks environment, personal and family connections to veterans and institutional interactions at resettlement facilities such as the Nigerian Armed Forces Resettlement Center (NAFRC). An interviewee said,

> *We see those who have retired and attend training at the NAFRC, Oshodi. First of all, after 35 years of service, they are given 6 months of skill acquisition training. Meanwhile, at retirement, the average person is about 53 years old. At that age, your risk appetite is likely small- (SP01).*

SP01's account is instructive because the awareness is already evaluative and comparative. The juxtaposition of 35 years of service against 6 months of resettlement training encodes a perception of institutional imbalance. That is, a disproportionality between what was given and what is returned. The observation that a 53-year-old retiree has limited risk appetite constitutes an implicit theory of age-dependent vulnerability that the institution in the participant's perception has failed to account for. Another interviewee said,

> *We see some of them around the barracks, some years after retirement. For some, it is because they don't have a house to go to. They never built one and the retirement package is not enough to build one from scratch to completion. Some of them are eventually forced to leave the barracks after a while- (SP02).*

The barracks/the institutional home becomes a refuge and an indictment. Veterans remain in the barracks after retirement due to necessity. This spatial observation is an organizational signal of considerable communicative force.

Veterans as Future Selves: The Anticipatory Mirror

Across interviews, participants described veterans as representations of their own anticipated futures. The metaphor of the 'mirror' used here appeared in the data and captures the psychological mechanism at work. An interviewee said,

> *Our veterans are like our mirror. It is exactly what I am expecting, I am seeing in the veterans of today. If it will be any different, only time will tell. Many times, I see them and think of my own self and my family. And I ask myself: does the system have any plans for me? If I die while in the frontlines, what will be the hope for my wife and 2 kids? It is demoralizing- (SP02).*

SP02's account is analytically dense in that the mirror metaphor encodes the essential dynamic of the future-self effect. Veterans are identified with serving as reflective surfaces in which the participant sees a version of their own possible future. The shift from third-person observation (veterans) to first-person self-interrogation (does the system have any plans for me?) enacts in real time the cognitive movement from external observation to internal self-projection that possible selves theory describes.

Furthermore, SP05's account elaborates the temporal dimension of this anticipatory identification, "It [referring to veterans' living conditions] tells me I should not expect anything different. But we came in with the hope that maybe someday the system will make things better than they are. But currently, as it is, it is not too good." (SP05). The phrase 'I should not expect anything different' reveals the predictive function of the veteran-as-future-self construct. Veterans are treated as a reliable indicator of what membership will eventually deliver.

Another interviewee's account brings an urgency that intensifies the future-self projection, "The few veterans that we see and admire are mostly those who ended up as service chiefs because of the perks of their office, even upon retirement. Unfortunately, as a non-commissioned officer, that is not a dream you can have." (SP09). This observation introduces another dimension to the future-self construction, where the futures available for self-projection are hierarchically differentiated. Senior veterans who attained the highest ranks are observed to live in material comfort, while junior veterans are observed to struggle. For a non-commissioned officer like SP09, the comfortable post-service possible self is not simply uncertain but institutionally foreclosed. The institution thus communicates that it may fail its members, and even more, that it will fail them according to rank.

The Institution Speaks Through Its Veterans: Organizational Signals and Meaning-Making

Participants interpreted veterans' conditions as communications from the institution or as signals, in the organizational sense, of what the military values and what it does not. An interviewee noted, "If they do better obviously I will be more trusting of the institution. But if not, then of course I will have reservations and will hardly encourage anyone close to me to join the job." (SP05).

The institution's credibility is assessed by its post-service behavior, which by definition occurs after the leverage of active membership has expired. This is consistent with signaling theory's insight that the most credible signals are those that are costly to fake (Spence 1973). An institution's treatment of former members who can no longer contribute to operational results is a signal of precisely this character.

A dissenting voice in the data offers an important analytic counterpoint. As a commander with access to foreign mission earnings, SP08 occupies a materially differentiated position that moderates the impact of veteran welfare signals, he noted:

> *The system is trying, may not be doing everything, but at least the basics are there. Some soldiers during their time in service had the opportunity to attend foreign courses where they were paid estacodes and the United Nations (UN), African Union (AU), or other missions where they were paid in foreign currency. When they return home, we encourage many of them to buy land and start something small-(SP08).*

SP08's does not contradict the existence of the future-self effect. What the data does is that it illustrates the conditions under which its negative valence is attenuated. For those who have accessed institutional pathways to independent wealth-building, such as via foreign missions or even foreign currency allowances, the anticipated possible self is more favorable and the institution's welfare signals are read more charitably. SP08 is

thus an analytical limit case in which the future-self effect operates differentially based on the individual's position within the institution's reward architecture.

Commitment, Trust, Morale and the Calculus of Remaining

Across interviews, the interpretive processes described in Themes 2 and 3 translated into specific attitudinal and intentional outcomes. Most prominently, in relation to institutional trust, commitment, morale and career intentions. An interviewee said, "I know that eventually this will be my own fate too. If I have a better option, I will leave." (SP01)

This statement is paradigmatic of a specific form of attitudinal collapse because the loss of affective commitment occurs through the anticipation of future mistreatment. The conditional framing 'if I had a better option' also reveals that continued service is experienced as a constrained choice rather than a valued commitment. This is precisely the profile of continuance commitment that Meyer and Allen (1991) describe as the most brittle form of organizational attachment. Whereby employees stay not out of loyalty or obligation but for lack of alternatives.

An interviewee said "In fact, I can't have my child become a service personnel" (SP02). This refusal to countenance a successor generation's entry into military service is an extreme but revealing expression of organizational disidentification. This intergenerational refusal is emblematic of a total withdrawal of the implicit endorsement that organizational members provide to recruitment and succession. This is a form of reputational withdrawal with direct HR implications that disrupts what Soeters et al (2006, p. 249) called "endo-recruitment," which is a common practice of recruiting new employees from family members of military personnel (serving/retired).

Adaptive Strategies and Retirement Anxiety

In response to the anticipated welfare shortfall that veteran observations highlight, several participants described adaptive strategies they adopted while still serving. These are often intended to hedge against the institution's perceived failure to provide for retirement. An interviewee said "You find officers doing business while in service to survive and as a safety net that prepares them for retirement. So that when they retire, the business has become strong enough to stand on its own" (SP09).

The parallel entrepreneurial activity described by SP09 is an adaptive response to anticipated institutional failure and an index of diminished institutional reliance. The organization that produces full commitment is one to which members delegate their material futures. However, the organization that produces parallel business activity is one whose members have concluded that such delegation is imprudent. This has direct implications for engagement, productivity and institutional performance.

Developing the Future-Self Effect as a Conceptual Framework

The findings support the development of the future-self effect as a theoretically coherent conceptual mechanism with identifiable empirical grounding. The Effect operates through a four-stage process, namely:

- observation of veteran welfare conditions, which is enabled by the institutional proximity of military barracks life and the social networks connecting serving and retired personnel;
- self-projection, through which veterans are cognitively constructed as personally relevant possible futures;
- signal interpretation, through which welfare conditions are read as communications about the institution's long-term commitments; and
- attitudinal adjustment, through which serving personnel revise their commitment, trust, morale and career intentions accordingly.

The conceptual conditions for its operation include a long tenure, deferred rewards, strong occupational identity, observable former members and an institutional welfare apparatus.

Transferability Beyond the Military

While this study is grounded in the Nigerian military context, the future-self effect is not institutionally specific to the armed forces. In police organizations, officers observe retired colleagues' welfare conditions and draw inferences about what institutional membership ultimately delivers. In academia, junior scholars observe the fates of emeritus professors and recently retired colleagues. In healthcare, junior nurses and physicians observe the conditions of those who have completed long service careers. They form perceptions/judgments about

whether the institution cares for its people beyond their productive years. In public service, the visible conditions of pensioners and former civil servants constitute an ongoing organizational communication about institutional values and reciprocity.

The future-self effect therefore offers organizational behavior and HRM scholarship a generalizable conceptual tool for understanding how post-employment welfare conditions feed back through the medium of currently serving members' perceptions into present organizational commitment, trust and retention. The managerial implication is that investment in veteran or retiree welfare is a present-tense investment in the commitment and morale of those still serving.

6. Conclusion

This paper has introduced and developed the future-self effect as a conceptual mechanism that links the observable welfare conditions of retired veterans to the organizational commitment, trust, morale and career intentions of currently serving military personnel. The study uses data gathered from serving personnel across the Nigerian Army, Navy and Air Force and theorized through an integrative framework that draws insights from possible selves theory, social learning theory, social identity theory and organizational commitment theory. The future-self effect offers an original contribution to organizational behavior scholarship. Future research might empirically test the future self effect and examine how the US Transition Assistance Program attenuates the effect.

Acknowledgements

The authors wish to thank the anonymous peer reviewers for their feedback and the Covenant University Center for Research, Innovation and Discovery (CUCRID) for paying for the article fees.

Ethical Declaration: The study was conducted in accordance with the Helsinki Declaration for qualitative research. Although there was no formal institutional review board (IRB) approval, verbal informed consent was sought, participation was voluntary and interviewees were told that they could withdraw at any time without consequences. Interviewees were also informed that the study was strictly for academic purposes.

AI Declaration: The authors declare that Grammarly was used to enhance grammatical flow and consistency in English style.

References

Abasilim, U. D. Gberevbie, D. E. and Osibanjo, O. A. (2019) Leadership styles and employees' commitment: Empirical evidence from Nigeria, *Sage Open,* Vol 9, No. 3, 2158244019866287.

Abasilim, U. D. (2024) Exploring the Concept of Leadership, *Humanities and Social Sciences*, Vol 31, No 1, pp 7-32.

Bandura, A. and Walters, R. H. (1977) Social learning theory, Vol 1, pp 33-52, Englewood Cliffs, NJ, Prentice-hall.

Bandura, A. (1986) *Social Foundations of Thought and Action: A Social Cognitive Theory,* Prentice-Hall.

Bryant, A. and Charmaz, K. (eds.) (2010) *The SAGE handbook of grounded theory: Paperback edition*, Thousand Oaks, Sage.

Cable, D.M. and Turban, D.B. (2003) The value of organizational reputation in the recruitment context: A brand-equity perspective, *Journal of Applied Social Psychology*, Vol 33, No. 11, pp 2244-2266.

Charmaz, K. (2006) *Constructing grounded theory: A practical guide through qualitative analysis*, Thousand Oaks, Sage.

Chidozie, F. Osimen, G. U. Bhadmus, J. and Newo, O. (2025) Sustainable development goals implementation in a post-colonial African state: any future for the African continental free trade area? *Sustainable Development*, Vol 33, No. 1, 1479-1490.

Creswell, J. W. (2013) *Qualitative Inquiry and Research Design: Choosing Among Five Approaches (3rd ed.).* Thousand Oaks, SAGE.

Dandeker, C., Wessely, S., Iversen, A. and Ross, J. (2006) What's in a name? Defining and caring for "Veterans" the United Kingdom in international perspective", *Armed Forces & Society*, Vol 32, No. 2, pp 161-177.

Dwyer, S. C. and Buckle, J. L. (2009) The space between: On being an insider-outsider in qualitative research, *International Journal of Qualitative Methods*, Vol 8, No. 1, pp 54–63.

Eisenberger, R., Huntington, R., Hutchison, S. and Sowa, D. (1986) Perceived organizational support. *Journal of Applied Psychology*, Vol 71, No. 3, pp 500-507.

Gberevbie, D. E. (2010) Strategies for employee recruitment, retention and performance: Dimension of the Federal civil service of Nigeria, *African Journal of Business Management*, Vol 4, No 8, pp 1447-14456.

Griffith, J. (2008) "Institutional motives for serving in the US Army National Guard: Implications for recruitment, retention, and readiness. *Armed Forces & Society*, Vol 34, No. 2, pp 230-258.

Hockey, J. (1986) *Squaddies: Portrait of a Subculture*, Exeter, Exeter University Press.

Hoge, C.W., Castro, C.A., Messer, S.C., McGurk, D., Cotting, D.I. and Koffman, R.L. (2004) Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England Journal of Medicine*, Vol 35, No. 1, pp 13-22.

Jatau, M. P., Chidozie, F. and Lenshie, N. E. (2026) When Violence Targets Meaning: Improvised Explosive Devices (IEDs), Cultural Harm, and Human Security in Southeast Nigeria, *Society*, 1-15.

Janowitz, M. (1960) *The Professional Soldier: A Social and Political Portrait,* Free Press.

Markus, H. and Nurius, P. (1986) Possible Selves, *American Psychologist*, Vol 41, No. 9. Pp 954–969.

Mercer, J. (2007) The challenges of insider research in educational institutions: Wielding a double-edged sword and resolving delicate dilemmas, *Oxford Review of Education*, Vol 33, No. 1, pp 1–17.

Meyer, J.P. and Allen, N.J. (1991) A three-component conceptualization of organizational commitment. *Human resource management review*, Vol 1, No. 1, pp 61-89.

Morrison, E.W. and Robinson, S.L., 1997. When employees feel betrayed: A model of how psychological contract violation develops. *Academy of Management Review*, Vol 22, No. 1, pp 226-256.

Njeri, S 2021. Race, positionality and the researcher. In Mac Ginty, R., Brett, R. and Vogel, B (eds.) *The companion to peace and conflict fieldwork*, pp 381-394, Springer.

Ojo, S. (2021) Investigating Entrepreneurship Among Nigerian Retired Military Veterans. In S. Ojo (ed.), *Global perspectives on military entrepreneurship and innovation*, pp 119-147, IGI Global.

Ojo, S. (2026) The Nature of Military Entrepreneurship in the Armed Forces of Nigeria, *The Military Ecosystem and Entrepreneurship in Nigeria: Economic Growth and Security Developments*, pp 17-26.

Rousseau, D.M. (1989) Psychological and implied contracts in organizations, *Employee responsibilities and rights journal*, Vol 2, No. 2, pp 121-139.

Rousseau, D. M. (1995) *Psychological and Organizational Contracts: Understanding Written and Unwritten Agreements,* SAGE, Thousand Oaks.

Soeters, J. L., Winslow, D. J. and Weibull, A. (2006) Military culture. In G. Caforio (ed.), *Handbook of the Sociology of the Military*, pp 237–254, Springer.

Spence, Michael (1973) "Job Market Signaling" *The Quarterly Journal of Economics,* Vol 87, No. 3, pp 355–374.

Tajfel, H. and Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin and S. Worchel (eds.), *The Social Psychology of Intergroup Relations*, pp 33–47, Brooks/Cole.

Yin, R. K. (2014) *Case Study Research: Design and Methods (5th ed.), Thousand Oaks,* SAGE.

Beyond Active Service: Nigerian Military Veterans' Welfare as Strategic Human Resource Management

Mark Peter Jatau, Daniel Eseme Gberevbie and Ugochukwu David Abasilim
Department of Political Science and International Relations, College of Leadership and Development Studies, Covenant University, Ota, Nigeria

mark.peterpgs@stu.cu.edu.ng
daniel.gberevbie@covenantuniversity.edu.ng
ugochukwu.abasilim@covenantuniversity.edu.ng

Abstract: Human Resource Management (HRM) scholarship has traditionally concentrated on employment relationships during active service. However, this dimension treats the end of employment as the terminal boundary of organizational obligation. This conceptual study challenges that assumption. It argues that post-employment welfare constitutes a strategically significant HRM instrument with theorized implications for institutional legitimacy and workforce sustainability. Based on the experience of Nigeria's military establishment as an illustrative case, this paper develops a theoretically grounded conceptual framework that reframes veteran welfare from a social policy appendage to a strategic organizational asset. The paper integrates strategic human resource management, which situates HR practices within the competitive and institutional ambitions of organizations. Psychological contract theory, which illuminates how perceived obligations inform employee behavior and social exchange theory, explains the reciprocal dynamics underpinning organizational commitment. The analysis develops some theoretical propositions that link veteran welfare to recruitment attractiveness, employee retention and commitment and perceptions of institutional effectiveness. A conceptual model is presented that maps the strategic pathways through which post-employment welfare may generate organizational returns. The paper contends that organizations, military and non-military alike, that invest meaningfully in post-employment welfare are theorized to create a signaling environment that reinforces the psychological contracts of active employees, strengthens employer brand equity and sustains the institutional trust upon which long-term organizational performance depends on. The paper makes three principal contributions. The first is that it extends strategic HRM theory beyond the active employment period. Secondly, it offers public-sector and military organizations with a conceptual basis for institutionalizing veteran welfare within their strategic people management frameworks. Then, lastly, it establishes a research agenda for empirical investigation of the organizational returns from post-employment welfare investment.

Keywords: Strategic HRM, Psychological contract, Organizational legitimacy, Public sector HRM, Workforce sustainability

1. Introduction

The study of human resource management (HRM) has generated a rich body of knowledge concerning how organizations attract, develop, motivate and retain their workforces. The field has positioned itself as central to organizational strategy. It takes insight from Ulrich's (1996) business partner model to Huselid's (1995) demonstration of the performance-enhancing effects of HR practices. Notwithstanding this maturation, strategic HRM scholarship retains a conspicuous blind spot as it concerns itself with the period of active employment. The moment an employee exits the organization, whether through resignation, retirement or discharge, they largely go missing in action (MIA) from the HRM analytical frame.

This study argues that organizations benefit from what employees do during service and they also derive value or incur strategic costs from how they treat those employees once service ends. Nowhere is this more apparent than in military organizations, where the treatment of veterans informs recruitment decisions among prospective service members and influences the trust and commitment of those still in active service.

As one of Africa's largest military establishments, the Nigerian military faces challenges of retention of skilled personnel and institutional legitimacy, which are not unrelated to public perceptions of how the institution treats its veterans (Oshigbo and Oshigbo, 2019). Veterans in Nigeria report inadequate welfare provisions, poor transition support and a sense of institutional abandonment upon retirement (Matthews, 1981; Chidebe et al, 2023; Chidozie et al, 2025). These perceptions are likely to circulate within recruitment pools and influence the employer brand that military institutions project to prospective recruits.

The conceptual gap this paper addresses is that existing HRM theory does not adequately account for the strategic value of post-employment welfare and existing veteran welfare scholarship, where it exists at all in African contexts, fails to treat veteran welfare as an HRM and organizational effectiveness question. This paper bridges that gap by developing a strategic HRM perspective on veteran welfare that is grounded in management theory, organizational scholarship and the specific institutional context of the Nigerian military.

2. Methodological Note

This paper adopts a conceptual-theoretical approach through systematic engagement with existing literature. The literature informing this paper was selected purposively, based on foundational and recent contributions across strategic HRM, psychological contract theory, social exchange theory, employer branding and organizational legitimacy. The Nigerian military context was not selected as a theoretically generative setting with the precise conditions the framework is designed to illuminate, such as documented welfare deficits and spillover retention pressures. This makes it an appropriate context for conceptual theory-building, in line with the argument for context-sensitive theorizing advanced by Johns (2006).

3. Literature Review

Strategic Human Resource Management

Strategic HRM emerged as a distinct field in the 1980s and 1990s as scholars sought to connect HR practices to performance results (Wright and McMahan, 1992; Boxall and Purcell, 2022). The foundational insight was that HR systems can create organizational capabilities that are difficult for competitors to imitate and that translate into competitive advantage (Barney and Wright, 1998). High-performance work systems, talent management frameworks and strategic workforce planning all reflect the view that people management is a source of organizational value.

Within this literature, HR practices are evaluated against their capacity to influence employee knowledge, skills, abilities and motivation or what scholars have called AMO framework as a means of influencing organizational performance (Appelbaum et al, 2000). However, what is largely absent from this framework is any consideration of how HR practices directed at former employees affect the perceptions and decisions of current and prospective employees.

Employee Retention

The organizational costs of employee turnover are well-established in the extant literature. Cascio and McEvoy (2006) estimated that replacement costs for skilled employees can range from 100% to 300% of annual salary when recruitment, training and lost productivity are factored in. For military organizations that invest extensively in the technical training and tactical development of their personnel, the costs of premature attrition are especially acute (see Dyagi et al, 2020; Griffeth et al, 2000).

The retention literature identifies perceived organizational support (Eisenberger et al, 1986; Eisenberger et al, 2020), fairness perceptions, developmental opportunities and the psychological contract as key determinants of retention intentions. Critically, employees appear to attune their organizational commitment against their own treatment as well as against the treatment they observe being accorded to colleagues and predecessors.

Employer Attractiveness

Employer attractiveness has been largely theorized through the lens of employer branding (Backhaus and Tikoo, 2004; Lievens and Highhouse, 2003). Organizations signal their attractiveness through symbolic attributes like prestige, social identity and organizational values and through non-symbolic attributes such as compensation, career development and job security. Prospective recruits engage in pre-entry psychological contracting. This is a way of forming expectations about the terms of the employment relationship before joining. Most times, these expectations are informed by observable organizational behavior toward current and former employees (Rousseau, 1995). For military organizations, where the symbolic dimensions (honor, sacrifice, service and brotherhood) of employer brand are particularly salient, the treatment of veterans is a crucial signal of institutional values. Organizations that visibly honor their obligations to departing and departed members communicate a credibility of commitment that prospective recruits can reasonably expect to be extended to themselves (see Abasilim et al. 2019 and Cable and Turban, 2003, for the notion of how job seekers develop perceptions from signals about an organization's reputation).

Veteran Welfare Scholarship

The scholarly literature on veteran welfare is more developed in Western contexts, particularly the United States and the United Kingdom than it is in sub-Saharan Africa. American scholarship on veteran welfare has been substantially influenced by the institutional framework of the Department of Veterans Affairs and has tended to focus on healthcare access, mental health issues and economic reintegration (Tanielian and Jaycox, 2008; Hoge

et al, 2004). British scholarship has placed emphasis on transition support and the health consequences of combat exposure (Fear et al, 2010; MacManus et al, 2012).

In the Nigerian and broader African context, veteran welfare scholarship is sparse but not entirely absent. Matthews, (1981), Oshigbo and Oshigbo (2019) and Jatau et al (2026) have documented the inadequacy of welfare provisions for Nigerian military retirees. More recent studies by Chidozie et al (2025) and Chidebe et al (2023) noted structural gaps in pension administration, arguing that Nigerian veterans "retire to poverty" (p. 609). However, this literature has not yet engaged with veteran welfare from the perspectives of strategic HRM and organizational management theory.

3.1 Theoretical Perspectives

Strategic HRM Perspective

The strategic HRM perspective holds that HR practices should be designed and evaluated in terms of their contribution to organizational strategic objectives (Wright and McMahan, 1992). A strategic approach to HRM requires vertical alignment, in which HR practices support organizational strategy and horizontal alignment, in which HR practices reinforce one another (Baird and Meshoulam, 1988; Boxall and Purcell, 2022). Applying this perspective to veteran welfare requires extending the temporal boundary of Strategic HRM analysis. Organizations that extend their welfare commitment beyond active employment are theorized to develop HR capabilities such as a reputation for trustworthiness, a strong employer brand and a loyal alumni network that may generate organizational advantage.

Psychological Contract Theory

Furthermore, Rousseau (1989, 1995) defined the psychological contract as an individual's beliefs about the terms of the reciprocal exchange agreement between themselves and their organization. This provides a complementary explanation for the organizational effects of veteran welfare. Psychological contracts are formed through the accumulation of organizational signals such as their policies, practices and observed behaviors that communicate what the organization values and what it commits to deliver.

Social Exchange Theory

Meanwhile, social exchange theory (SET) by Blau (1964), which was later elaborated by Cropanzano and Mitchell (2005) proposes that social relationships are governed by norms of reciprocity. In other words, actors who receive benefits from others feel obligated to repay them. In organizational contexts, SET has been used to explain why employees who receive organizational support tend to exhibit higher commitment and performance (Eisenberger et al, 1986; Rhoades and Eisenberger, 2002). This perspective implies that employees who observe that their organization honors its welfare obligations to departing colleagues will perceive the organization as a trustworthy partner and respond with greater commitment.

3.2 Conceptual Development

Veteran Welfare as a Strategic Organizational Asset

That being said, the conventional treatment of veteran welfare within organizational practice has been to discharge the obligation at minimum cost once the employment relationship has terminated. This reflects a tendency to treat post-employment responsibilities as lying outside the domain of people management.

To describe veteran welfare as a strategic asset is to claim that it meets three conditions. Top among them is that it creates organizational value. Then it is linked to organizational strategy. Lastly it is managed with intention not discharged by default. The strategic linkage operates through the alignment of welfare practices with the human capital imperatives of military organizations, i.e., the need to attract and retain personnel of sufficient quality to fulfill complex and demanding operational mandates. The intentional management condition is met when organizations develop systematic welfare frameworks as opposed to ad hoc provisions that are inadequately resourced.

Veteran Welfare and Recruitment Attractiveness

The employer brand literature demonstrates that prospective recruits are responsive to organizational signals about how employees are treated (Backhaus and Tikoo, 2004; Lievens, 2007). For military organizations, the treatment of veterans constitutes one of the most visible and credible such signals. Visible because veteran communities are situated within the same social networks from which military organizations recruit. And Credible because veterans are perceived as disinterested witnesses to institutional behavior.

When prospective recruits observe that veterans are well supported through adequate pensions, healthcare, housing and transition assistance, they could form expectations that the organization will also support them throughout their service and beyond. Conversely, when prospective recruits observe poorly supported veterans, they may form expectations of organizational betrayal that reduce recruitment intentions even among those who might otherwise be well-suited to military service.

Veteran Welfare and Employee Retention and Trust

The retention effects of veteran welfare operate through some identifiable mechanisms. The first is that robust post-employment welfare provisions are expected to reduce the perceived costs of long service by assuring active employees that they will be materially supported upon disengagement. Service members who are confident in their post-service welfare are less likely to seek premature departure in search of civilian employment that offers greater post-employment security. The second mechanism is normative and indirect. When employees observe that the organization honors its obligations to those who have served, they may come to believe that the organization will similarly honor its obligations to them. This belief is a form of prospective psychological contract fulfillment and it could elevate affective commitment and reduce turnover intention.

Meyer et al. (1995) argued that organizational trust is the willingness of employees to be vulnerable to organizational actions based on expectations of benevolent intent. This trust is a foundational condition for the high levels of risk-taking and unit cohesion that effective military operations require. Trust is built through the consistent fulfillment of organizational commitments over time and eroded through perceived breaches of obligation. Because veteran welfare practices are observed by active service members as indicators of organizational trustworthiness, they function as trust-building (or trust-eroding) mechanisms across the entire workforce

Veteran Welfare and Organizational Reputation

According to Fombrun (1996) and Gberevbie (2010) organizational reputation is the aggregate assessment of an organization's qualities and conduct formed by multiple stakeholders over time. They imply that the reputation of an organization is a strategic asset with implications for political support and public trust.

Veteran welfare practices contribute to organizational reputation through media channels and community networks. Organizations that invest in veteran welfare build positive reputational capital that strengthens their institutional standing. In Nigeria, where public confidence in state institutions has been eroded by governance failures, the military's treatment of its veterans is one of the observable indicators by which citizens can attune their trust in institutions.

Veteran Welfare and Organizational Effectiveness

It is important to note that veteran welfare does not improve organizational performance in a direct way. Instead, its effects operate through the workforce mechanisms that strategic HRM identifies as foundational to long-term organizational success (Abasilim et al, 2019; Dyagi et al, 2020).

These dynamics have important human resource consequences because prospective recruits are likely to view the organization as an attractive employer. Meanwhile, serving personnel may also be committed and remain with the organization longer. Reduced turnover and improved retention enable organizations to preserve valuable institutional knowledge and avoid the costs associated with replacing experienced personnel.

An Integrated Conceptual Model

This study defines veteran welfare as adequate pension, healthcare provision, housing support, transition assistance and community integration programs. The arguments advanced so far is synthesized into an integrated conceptual model. The model posits that veterans' welfare practices generate strategic organizational returns through these primary pathways:

- improved employer attractiveness to prospective recruits, mediated by employer brand signals;
- improved retention of active service members, mediated by psychological contract reinforcement and social exchange reciprocity;
- strengthened organizational reputation, mediated by public visibility of welfare practices;
- elevated employee trust, mediated by observed organizational trustworthiness.

4. Study's Propositions

On the basis of the theoretical framework and conceptual analysis developed in this study, the following propositions are advanced:

Proposition 1: Organizations that provide adequate veteran welfare will exhibit stronger employer attractiveness among prospective recruits, mediated by positive employer brand signals that are communicated via veteran communities and networks.

Proposition 2: Active service members in organizations with strong veteran welfare systems will exhibit higher organizational commitment and lower turnover intentions than those in organizations with inadequate welfare provision, mediated by the strengthening of relational psychological contracts.

Proposition 3: The relationship between veteran welfare provision and employee retention will be moderated by the visibility of welfare practices within the active workforce, such that welfare benefits that are visible will have stronger retention effects than those that are privately administered.

Proposition 4: Through its effects on recruitment and retention, veteran welfare will contribute to long-term workforce sustainability and organizational effectiveness.

5. Discussion: Some Implications of the Study's Argument

The study introduces post-employment HR strategy as a new analytical domain absent from the mainstream management literature.

The paper also integrates a conceptual framework that explains the organizational mechanics of veteran welfare. This theoretical integration is more compelling than any single perspective alone as it captures the motivational dynamics and the strategic resource dimensions of the welfare-performance relationship.

Furthermore, the paper introduces organizational legitimacy as a strategic HRM consideration. The argument is that HR practices generate reputational and legitimacy capital that is organizationally significant. This contribution aligns with scholarship on stakeholder-oriented HRM and the institutional dynamics of people management practices (Paauwe, 2009; Boselie and Van der Heijden, 2024).

Implications for Public-Sector Organizations

The arguments developed in this paper have particular resonance for public-sector organizations, where the employment relationship is informed by institutional considerations above market conditionalities and where organizational legitimacy in the eyes of the public and the state is a crucial resource. Public-sector employers frequently invest heavily in the development of specialized personnel and face growing competition from private-sector alternatives for experienced talent.

For such organizations, the strategic case for post-employment welfare is compelling. This is because the public sector may not always compete with private-sector compensation packages. Notwithstanding, it must therefore compete on the relational dimensions of the employment relationship via long-term security and guaranteed post-employment support. Robust welfare systems that meaningfully extend beyond active employment are a mechanism through which public-sector employers can differentiate themselves as employers of choice and build the depth of the psychological contract that sustains long-term commitment.

Implications for Workforce Sustainability

According to Boxall and Purcell (2022) and Pfeffer (2010), workforce sustainability is a prominent theme in management scholarship. The veteran welfare framework developed here contributes to the workforce sustainability literature by identifying post-employment welfare as an important condition for human capital sustainability in high-investment organizations.

The sustainability argument is particularly significant in the context of Nigeria's security environment, which has placed operational demands and thinly stretched the Armed Forces over the past two decades across various theaters of operations (Ibrahim and Bala, 2018). Organizations that are engaged in military operations and experiencing human capital degradation due to inadequate welfare for active and veteran personnel face compounding challenges that threaten operational capability. Investing in veteran welfare is, from this perspective, an investment in the organizational resilience that sustainability requires.

Relevance to Military and Non-Military Organizations

Although this paper has developed its arguments primarily through the Nigerian Armed Forces, its conceptual framework has broader applicability. Also, the theoretical claim that post-employment welfare generates strategic HRM returns through recruitment, retention and commitment pathways is applicable to any organization.

Police services, intelligence agencies, emergency medical services and certain categories of professional civil service meet all these conditions. Beyond the public sector, highly specialized private-sector employers like professional services firms and knowledge-intensive enterprises all face analogous dynamics. Law firms whose alumni practice in the same legal community from which they recruit, consulting firms whose alumni serve as clients and referral networks and universities whose alumni are donors and reputational custodians all have strategic interests in post-employment relationships that, while not typically framed as veteran welfare, are nonetheless analytically equivalent.

6. Conclusion

This paper has argued that veteran welfare is a strategic HRM instrument. Based on insights from strategic HRM theory, social exchange theory, psychological contract theory, the resource-based view and organizational legitimacy theory on the question of post-employment welfare, the paper has developed a conceptual framework that situates veteran welfare within the mainstream of management scholarship.

The case of Nigeria's military veterans is locally significant and theoretically generative. This is because on a local level, it illuminates a gap between the institutional rhetoric of military service as a noble sacrifice and the material reality of veteran neglect. Theoretically, it provides a rich context for developing and testing propositions about the organizational mechanics of post-employment welfare. These contribute to a broader reconceptualization of the temporal scope of Strategic HRM.

The four propositions advanced in this paper provide a research agenda for empirical investigation. Survey-based studies can examine the relationship between veterans' welfare perceptions and active-duty service members' commitment, which would begin to populate the causal pathways sketched in the conceptual model.

Acknowledgements

The authors wish to thank the anonymous peer reviewers for their valuable feedback. Appreciation also goes to the Covenant University Center for Research, Innovation and Discovery (CUCRID) for paying for the Conference/publication fees.

Ethical Declaration: Was not required for this study.

AI Declaration: The authors declare that Grammarly was used.

References

Abasilim, U. D. Gberevbie, D. E. and Osibanjo, O. A. (2019) Leadership styles and employees' commitment: Empirical evidence from Nigeria, *Sage Open,* Vol 9, No. 3, 2158244019866287.

Appelbaum, E. Bailey, T. Berg, P. and Kalleberg, A. (2000) Manufacturing advantage: Why high-performance work systems pay off. Cornell University Press.

Backhaus, K. and Tikoo, S. (2004) Conceptualizing and researching employer branding, *Career Development International*, Vol 9, No. 5, pp 501–517.

Baird, L. and Meshoulam, I. (1988) Managing two fits of strategic human resource management, *Academy of Management Review*, Vol 13, No. 1, 116–128.

Barney, J. B. and Wright, P. M. (1998) On becoming a strategic partner: The role of human resources in gaining competitive advantage. *Human Resource Management: Published in Cooperation with the School of Business Administration, the University of Michigan and in alliance with the Society of Human Resources Management*, Vol 37, No. 1, pp 31–46.

Blau, P. M. (1964). Exchange and power in social life. Wiley.

Boselie, P. and Van der Heijden, B. (2024) *Strategic human resource management: A balanced approach*, McGraw Hill.

Boxall, P. and Purcell, J. (2022) *Strategy and Human Resource Management*, Bloomsbury Publishing.

Cable, D. M. and Turban, D. B. (2003) The value of organizational reputation in the recruitment context: A brand-equity perspective, *Journal of Applied Social Psychology*, Vol 33, No. 11, pp 2244–2266.

Cascio, W. F. and McEvoy G. (2006) *Managing human resources: Productivity, quality of work life, profits*, McGraw-Hill.

Chidebe, R. Agha, A. A. Ugwu, E. Narine, D. Yamashita, T. and Cummins, P. (2023) Retiring to poverty: Veterans' protests for nonpayment of pensions in Nigeria. Innovation in Aging, 7(Suppl. 1), 609-609.

Chidozie, F. Osimen, G. U. Bhadmus, J. and Newo, O. (2025) Sustainable development goals implementation in a post-colonial African state: any future for the African continental free trade area? *Sustainable Development*, Vol 33, No. 1, 1479-1490.

Conway, N. and Briner, R. B. (2005) *Understanding psychological contracts at work: A critical evaluation of theory and research*, Oxford University Press.

Cropanzano, R. and Mitchell, M. S. (2005) Social exchange theory: An interdisciplinary review, *Journal of Management,* Vol 31, No. 6, pp 874–900.

Dyagi, G. M. Ibietan, J. and Abasilim, U. D. (2020) Performance appraisal and public sector productivity in Nigeria: Lessons from a Military Service Unit, *International Journal of Social Sciences and Humanities Reviews*, Vol 10, No. 1, pp 171-182.

Eisenberger, R. Huntington, R. Hutchison, S. and Sowa, D. (1986) Perceived organizational support. *Journal of Applied Psychology*, Vol 71, No. 3, pp 500–507.

Eisenberger, R. Rhoades, S. L. and Wen, X. (2020) Perceived organizational support: Why caring about employees counts, *Annual Review of Organizational Psychology and Organizational Behavior*, Vol 7, No. 1, pp 101-124.

Fear, N. T., Jones, M., Murphy, D., Hull, L., Iversen, A. C., Coker, B. Machell, L. Sundin, J. Woodhead, C. Jone, N. Greenberg, N. Landau, S. Dandeker, C. Rona, R.J. Hotopf, M. and Wessely, S. (2010) What are the consequences of deployment to Iraq and Afghanistan on the mental health of the UK armed forces? A cohort study, *The Lancet*, Vol 375, No 9728, pp 1783–1797.

Fombrun, C. J. (1996) *Reputation: Realizing value from the corporate image,* Harvard Business School Press.

Gberevbie, D. E. (2010) Strategies for employee recruitment, retention and performance: Dimension of the Federal civil service of Nigeria, *African Journal of Business Management*, Vol 4, No 8.

Griffeth, R. W. Hom, P. W. and Gaertner, S. (2000) A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium, *Journal of Management*, Vol 26, No. 3, pp 463-488.

Hoge, C. W. Castro, C. A. Messer, S. C. McGurk, D. Cotting, D. I. and Koffman, R. L. (2004) Combat Duty in Iraq and Afghanistan, Mental Health Problems, and Barriers to Care, *New England Journal of Medicine*, Vol 351, No. 1, pp 13–22.

Huselid, M. A. (1995) The impact of human resource management practices on turnover, productivity, and corporate financial performance, *Academy of Management Journal*, Vol 38, No. 3, pp 635–672.

Ibrahim, J. and Bala, S. (2018) Civilian-Led Governance and Security in Nigeria After Boko Haram, USIP, Retrieved from http://www.jstor.com/stable/resrep20243.

Jatau, M. P. Chidozie, F. and Lenshie, N. E. (2026) When Violence Targets Meaning: Improvised Explosive Devices (IEDs), Cultural Harm, and Human Security in Southeast Nigeria. *Society*, 1-15.

Johns, G. (2006) The essential impact of context on organizational behavior, Academy of Management Review, Vol 31, No. 2, pp 386–408

Lievens, F. (2007) Employer branding in the Belgian army: The importance of instrumental and symbolic beliefs for potential applicants, actual applicants, and military employees, *Human Resource Management*, Vol 46, No. 1, pp 51–69.

Lievens, F. and Highhouse, S. (2003) The relation of instrumental and symbolic attributes to a company's attractiveness as an employer, *Personnel Psychology*, Vol 56, No. 1, pp 75–102.

MacManus, D. Dean, K. Al Bakir, M. Iversen, A. C. Hull, L. Fahy, T. Wessely, S. and Fear, N. T. (2012) Violent behaviour in UK military personnel returning home after deployment. *Psychological Medicine*, Vol 42, No. 8, pp 1663–1673.

Matthews, J. K. (1981) "Clock Towers for the Colonized: Demobilization of the Nigerian Military and the Readjustment of Its Veterans to Civilian Life, 1918-1925," *The International Journal of African Historical Studies,* Vol 14, No. 2, pp. 254–271. https://doi.org/10.2307/218045.

Meyer, J. W. and Rowan, B. (1977) Institutionalized organizations: Formal structure as myth and ceremony. American Journal of Sociology, 83(2), 340–363.

Oshigbo, T.O. and Oshigbo, K.O. (2019) Nigerian Veterans: nationalists or Villains? In Taylor, P., Murray, E. and Albertson, K. (Eds), *Military Past, Civilian Present: International Perspectives on Social Policy, Administration, and Practice*, Springer.

Paauwe, J. (2009) HRM and performance: Achievements, methodological issues and prospects, *Journal of Management Studies*, Vol 46, No. 1, 129–142.

Pfeffer, J. (2010) Building sustainable organizations: The human factor, *Academy of Management Perspectives*, Vol 24, No. 1, pp 34–45.

Rhoades, L. and Eisenberger, R. (2002) Perceived organizational support: A review of the literature, *Journal of Applied Psychology*, Vol 87 No. 4, pp 698–714.

Rousseau, D. M. (1989) Psychological and implied contracts in organizations, *Employee Responsibilities and Rights Journal*, Vol 2, No. 2, pp 121–139.

Rousseau, D. M. (1995) Psychological and organizational contracts: Understanding written and unwritten agreements. Sage.

Rousseau, D. M. and Tijoriwala, S. A. (1998) Assessing psychological contracts: Issues, alternatives and measures, *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, Vol 19, No. S1, 679-695.

Tanielian, T. and Jaycox, L. H. (Eds.) (2008) Invisible wounds of war: Psychological and cognitive injuries, their consequences, and services to assist recovery, Vol 1, RAND Corporation.

Ulrich, D. (1996) *Human resource champions: The next agenda for adding value and delivering results,* Harvard Business School Press.

Wright, P. M. and McMahan, G. C. (1992) Theoretical perspectives for strategic human resource management. *Journal of Management*, Vol 18, No. 2, pp 295–320.

Leadership Competencies for Future Leaders in Dubai Government Organisations

Amira Kamali
Dubai Government Human Resources Department, UAE

akamali@dghr.gov.ae
ms_kamali@hotmail.com

Abstract: Leadership is identified as a critical element for the success of an organisation. With the rapid economic development that the United Arab Emirates (UAE) has witnessed in the past three decades, leadership is becoming an increasingly significant factor to the development and future of organisations. Leadership plays a pivotal role in aligning organisational vision with long-term objectives, especially in the public sector, where leaders are responsible for leading change, fostering innovation, and improving performance. Preparing future leaders in Dubai Government organisations therefore requires a shift toward advanced competencies that enable leaders to navigate technological disruption, shifting societal expectations, and increasing institutional complexity. This conceptual paper explores the core competencies essential for future government leaders, drawing on contemporary leadership theories and emerging trends in public-sector transformation. This paper discusses digital fluency, strategic foresight, ethical governance, agility, and innovation-driven problem-solving as foundational capabilities for advancing Dubai's long-term transformation agenda. These competencies reflect the evolving nature of public service delivery, where leaders are required to operate in dynamic, interconnected, and digitally-enabled governance systems. Through synthesizing recent scholarly literature and government best practices, the paper examines the leadership competencies most relevant to the future of Dubai Government. It emphasizes the importance of structured leadership development systems in preparing future-ready leaders who can strengthen institutional resilience, enhance organisational performance, and maintain competitiveness across government entities. The study contributes to the existing body of knowledge by presenting a forward-looking perspective on public-sector leadership, and providing a conceptual foundation for designing leadership programs that strengthen readiness, adaptability, and future competitiveness across government entities.

Keywords: Leadership competencies, Future leaders, Leadership development, Public sector, Digital leadership, Dubai Government

1. Introduction

Effective leadership is vital for the development of organisations (Asiri, 2026). Leadership studies have spanned cultures, decades, and theories (Horner, 1997; Scheepers and Storm, 2019). According to Anos (2025), leadership is an essential factor which determines the success of implementing change in organisations. Leadership in government organisations is undergoing a profound transformation driven by rapid technological progress, evolving societal expectations, and growing complexity in public-sector service delivery. Accordingly, government organisations are placing greater emphasis on developing employees with the right leadership competencies, to ensure a sustainable future-ready leadership pipeline. Future leaders must demonstrate advanced competencies that extend beyond traditional administrative skills, equipping them to manage uncertainty, lead high-performing teams, and support long-term institutional resilience. This study aims to identify the leadership competencies that are required for future leaders in the context of the UAE, and particularly across Dubai Government organisations, which are prioritizing leadership development to prepare future leaders for an increasingly digital and dynamic public sector. Despite this emphasis, leadership competency frameworks across Dubai Government entities remain fragmented and often lack alignment with emerging future-focused capabilities such as digital fluency, strategic foresight, systems thinking, and innovation-driven problem-solving. These gaps underscore the need for a unified, future-oriented leadership competency model designed for Dubai's public-sector context and that supports leaders capable of driving transformation across government. This conceptual paper examines the leadership competencies required for future leaders in Dubai Government organisations. The paper also introduces the competencies required to strengthen leadership readiness, enhance organisational performance, and support Dubai's long-term strategic vision. By addressing existing gaps and presenting a cohesive conceptual perspective, the study contributes to the growing body of knowledge on public-sector leadership, and provides a foundation for designing leadership development programs that prepare government leaders for future challenges.

2. Leadership for the Future

Leadership is one of the most important topics in society, because of its significant role in the progress of organisations (Asiri, 2026). Leadership is increasingly important as the global business environment becomes

more competitive (Fernandes et al., 2025). Leadership has evolved considerably over the past two decades in response to rapid technological, economic, and societal changes. In both private and public sector organisations, leaders play a central role in shaping strategic direction, managing organisational change, and fostering innovation (Scheepers and Storm, 2019). Traditional leadership models emphasized on command, control, and administrative efficiency are increasingly shifting towards approaches that prioritize agility, innovation, collaboration, and strategic foresight (Northouse, 2022). Future leaders are therefore expected not only to manage effectively, but also to anticipate change, inspire innovation, and lead digital transformation (Eaves et al., 2026). Several leadership theories provide useful insights into these evolving expectations. Transformational leadership focuses on inspiring employees through a shared vision and empowering them to achieve organisational change (Bass & Avolio, 1994). Burns argues that transformational leaders are people who elevate subordinates and themselves to a higher level of inspiration and morals (Bass, 2008). This leadership style encourages subordinates to rise above their self-interest to attain organisational goals beyond stated expectations (Bass & Avolio, 1994). Adaptive leadership emphasizes leaders' ability to respond effectively to complex challenges (Heifetz et al., 2009). This approach promotes flexibility, responsiveness, employee empowerment, and commitment to public service values, all of which are essential for sustaining innovation within complex organisational environments (Heifetz et al., 2009). Authentic leadership emphasizes ethical behaviour, trust and transparency (Bass, 2008), while Strategic leadership focuses on long-term organisational sustainability and future preparedness (Northouse, 2022).

3. Leadership Competencies for Tomorrow's Government Leaders

Various studies have investigated the leadership competencies required for future government leaders (Brown et al., 2005; Fernandes et al., 2025; Asiri, 2026). Leaders play a crucial role in organisational success, and there is a need for competent and effective leaders now more than ever to face the threats and challenges of the modern environment (Fernandes et al., 2025). The competencies required of government leaders have expanded beyond traditional managerial and administrative skills. As public organisations operate in increasingly complex and changing environments, future leaders require a diverse set of competencies, including strategic thinking, adaptability, emotional intelligence, innovation, collaboration, ethical judgement, and change management (OECD, 2017). These competencies enable government leaders to respond effectively to emerging challenges, ensuring accountability and delivering public value. Recent studies (Adie, 2024) emphasize leadership competencies related to digital governance, artificial intelligence, evidence-based decision-making, stakeholder engagement and continuous learning, which are becoming increasingly essential as government expand their use of digital technologies. Therefore, future leaders need to not only understand emerging technologies, but also to assess their opportunities and risks to ensure their responsible use within government organisations (Asiri, 2026). Furthermore, contemporary research highlights two competencies that are increasingly essential for future leaders: digital leadership and ethical leadership. Digital leadership has become a critical competency for future government leaders, encompassing the ability to integrate digital tools into organisational processes, guide digital transformation, and foster a culture of innovation and agility (Eaves et al., 2026). According to Asiri (2026), future leaders require strong digital literacy and AI competency in order to understand digital systems, interpret data analytics, manage digital risks and to ensure the responsible use of artificial intelligence in government operations. Together, these elements position digital leadership as a foundational competency for future government leaders, enabling them to manage technological complexity, foster innovation, and meet the evolving demands of modern public-sector transformation. Ethical leadership is also increasingly acknowledged as an essential competency for future government leaders (Jarbandhan, 2021). Ethical leadership is widely defined as the demonstration and promotion of appropriate, fair, and principled behaviour through a leader’s actions, relationships, interactions, communication, and decision-making processes (Brown et al., 2005). This competency requires leaders to act with justice, integrity, fairness, and consistency, ensuring that decisions are guided by clear moral principles rather than personal or organisational bias (Jarbandhan, 2021). Within the context of Dubai Government, ethical leadership represents a foundational future-leader competency, preparing leaders to navigate complex governance demands, build trust, uphold fairness in decision-making, and strengthen workplaces cultures and support long-term success. Collectively, ethical and digital leadership illustrate the evolving expectations placed on future leaders and highlight the need for leadership approaches that are both technically competent and morally grounded. Developing these competencies requires government organisations to adopt broader approaches to leadership development that extend beyond traditional classroom training. Experiential learning, cross-functional assignments, mentoring and coaching, job mobility, and exposure to challenging responsibilities allow emerging leaders to strengthen their skills and broaden their experience. These development opportunities help prepare individuals for more

complex leadership responsibilities while supporting the creation of a sustainable pipeline of future government leaders (Adie, 2024).

4. Leadership Development as Strategic Human Capital Investment

Leadership development is identified as a critical element for an organisation's long-term success (Brungardt, 1996; Day et al., 2014; Asiri, 2026). According to Brungardt (1996), leadership development is defined as each type of growth or development stage in the life cycle that facilitates the expansion in knowledge and skill needed to optimize one's leadership potential and performance (p. 83). Leadership development aims to encourage the transfer of organisational culture and values to future leaders, ultimately resulting in all members collectively sharing in achieving the objectives of an organisation (Day et al., 2014). Organisations with poor leadership are less able to cope with changes in the environment (Adie, 2024). Leadership development represents a major global investment, with organisations globally spending more than $60 billion a year on leadership development programs to enhance human capital and future organisational capability (Training Industry Report, 2024; Bersin, 2020). This trend is visible in the United Arab Emirates, where government organisations collectively invest hundreds of millions of dirhams each year in leadership and executive development programs, particularly through the Mohammed Bin Rashid School of Government (MBRSG, 2024). These programs typically train dozens of leaders per cohort, reflecting a broad governmental commitment to building institutional capability and preparing emerging and mid-level leaders for increasingly complex governance environments. The UAE's investment approach is grounded in the national belief that strong leadership capability is fundamental to enhancing government performance, resilience, and long-term competitiveness. Therefore, leadership development is viewed not merely as a training activity but as a strategic mechanism for cultivating future-ready leaders who can drive digital transformation, foster innovation, and uphold values-based governance. This perspective aligns with human capital theory, which emphasizes that continuous investment in leadership capability is crucial for protecting and improving organisational performance (McKinsey, 2023). Although many organisations are able to identify high-potential employees, research consistently demonstrates that individuals still need structured development pathways to become effective leaders, reinforcing the essential role of competency-based leadership systems (Asiri, 2026).

5. Leadership Development Initiatives in Dubai Government

The Dubai Government Human Resources Department (DGHR) serves as the centralized authority responsible for governing and developing human resources across all Dubai Government entities (DGHR, 2026). Its key responsibilities include developing HR policies, leading HR transformation, integrating human development initiatives, and providing centralized support to government HR departments (Government of Dubai, 2018). Beyond its regulatory role, DGHR prioritizes leadership development across Dubai Government. As the central HR authority, it ensures that government entities adopt structured, future-oriented leadership initiatives that prepare future leaders for complex governance environments (DGHR, 2026). DGHR's leadership development initiatives collectively aim to develop a sustainable leadership pipeline and reinforce institutional excellence across Dubai Government. The following section illustrates these initiatives and demonstrates their contribution to shaping a future-ready government workforce.

5.1 Government Chief Talent Officer Program (G-CTO)

Dubai Government Human Resources Department (DGHR) has introduced several strategic initiatives aimed at building a future-ready workforce capable of leading Dubai's transformation agenda. The most significant of these is the Government Chief Talent Officer Program (G-CTO), which DGHR's executive leadership initiative designed to prepare government talent leaders for the future of work in an AI-enabled environment (DGHR, 2026). Delivered over eight months, the programme provides more than 150 hours of advanced executive learning, innovation workshops, applied projects, executive coaching, and an international learning journey. The programme's first cohort includes 30 participants from 21 government entities, reflecting Dubai's commitment to developing leaders capable of driving workforce transformation across the public sector. The programme enhances participants' strategic thinking, data-driven decision-making, and their capability to design future-focused talent systems built around skills, data, and the responsible use of AI. The G-CTO initiative also supports the Dubai Economic Agenda D33 by positioning HR departments as strategic partners in decision-making and institutional excellence. The project seeks to enhance the capabilities of HR departments across government entities, advance approaches to human capital development, and reinforce Dubai's position as one of the world's most future-ready governments (DGHR, 2026).

5.2 HR Departments Empowerment Project

The HR Departments Empowerment Project is a strategic initiative launched by the Dubai Government Human Resources Department (DGHR) to elevate HR functions from traditional administrative roles to strategic leadership partners within government entities (Government of Dubai Media Office, 2024). The main objective of the initiative is to enhance institutional excellence by improving HR governance maturity, strengthening human capital capability and equipping HR departments with the competencies needed to support Dubai's transformation agenda under D33 (Dubai Economic Agenda D33, 2023). This initiative reinforces the role of HR in shaping future government priorities by promoting proactive workforce planning and building a sustainable pipeline of future leaders.

5.3 Chief Financial Officers (CFO) Program

The Chief Financial Officers (CFO) Programme is a strategic leadership-development initiative launched by the Dubai Government Human Resources Department in collaboration with Emirates NBD and ESCP Business School (DGHR, 2026). The programme is designed to prepare thirty high-potential Emirati leaders for advanced financial leadership roles through a five-month course that integrates interactive training, financial simulations, mentoring, and executive dialogues with international experts. This structured approach plays a pivotal role in strengthening Dubai's pipeline of future financial leaders, by preparing participants with advanced analytical capabilities, strategic financial judgment and the leadership behaviour required to excel in senior government roles.

5.4 1 Million Prompts Initiative

Dubai's 1 Million Prompts Initiative is a large-scale generative AI upskilling programme designed to train one million individuals in prompt engineering and practical AI use (Digital Dubai, 2026). The initiative is led by the Dubai Centre for Artificial Intelligence and aligned with DGHR's future-ready talent agenda, which prepares government employees, students, and professionals with the skills required to use AI tools effectively in communication, decision-making, and service design. By expanding AI literacy across society, the initiative enhances Dubai's goal to build an AI-enabled workforce and accelerates digital transformation across government entities (DGHR, 2026). The initiatives also strengthen Dubai's pipeline of future-ready leaders by equipping them with the analytical skills, digital fluency, and AI-driven decision-making capabilities required to lead effectively in rapidly evolving government environments.

5.5 AI Workforce Transformation Programme (AI+)

The AI+ programme is a government-wide workforce transformation initiative led by Digital Dubai to train 50,000 Dubai government employees with practical artificial intelligence competencies (Digital Dubai, 2026). The programme is delivered in collaboration with the Dubai Government Human Resources Department and the Dubai Centre for Artificial Intelligence, under the umbrella of the Dubai Future Foundation, as part of its commitment to strengthen the future readiness of government talent and accelerate the adoption of artificial intelligence across government operations (Government of Dubai Media Office, 2026). The programme is designed to enable employees to apply advanced technologies effectively in the workplace, improving government efficiency, boosting productivity, and fostering a culture of continuous learning and institutional innovation aligned with Dubai's ambition to lead globally in technology and innovation. This approach also strengthens the development of future-ready leaders who can confidently leverage AI in strategic decision-making and drive innovation across government (Dubai Economic Agenda D33, 2023).

6. Key Challenges for Future Leaders in Dubai Government

Leadership in Dubai Government is evolving within a rapidly changing governance environment shaped by technological advancement, evolving societal expectations, and increasing complexity in public-sector service delivery (UAE Government, 2024). Recent UAE leadership research and government initiatives indicate several persistent challenges that future leaders must overcome to effectively support Dubai's transformation agenda (UAE Government, 2024). Developing the next generation of leaders is therefore viewed as a strategic national priority in the UAE, requiring leaders who can navigate digital transformation, drive innovation and uphold the values of effective leadership (Mathias, 2017).

6.1.1 Digital transformation and AI integration

In today's rapidly evolving digital landscape, organisations and leaders face increasing pressure to adopt and effectively utilize artificial intelligence (AI), which is steadily entering management, work, and organisational

systems (Tursunbayeva & Gal, 2024). AI-based applications are now supporting employees in daily tasks, analytical decision-making, and collaborative work processes. However, the successful adoption of AI is a complex process, and requires leaders to navigate a range of administrative, organisational, and human-centric factors to achieve effective adoption and meaningful impact. Future leaders in Dubai government must manage the accelerating adoption of digital technologies and artificial intelligence across government operations (UAE Digital Government Strategy, 2025). This challenge goes beyond adopting new tools, as it requires the ability to redesign government services, integrate digital platforms, and interpret complex data. Also, leaders need the capability to manage technological disruption, and anticipate emerging risks while maintaining high service quality and public trust (Tursunbayeva & Gal, 2024). Agrawal et al. (2021) argue that digital transformation often brings substantial changes to work process, roles, task and responsibilities. Consequently, effective change management approaches are crucial for addressing employee resistance and ensuring a smooth transition toward new digital practices (Agrawal et al., 2021). According to Asiri (2026), future leaders require strong digital literacy and AI competency in order to understand digital systems, interpret data analytics, manage digital risks and to ensure the responsible use of AI in government operations.

6.1.2 Talent identification gaps

Weak talent identification systems significantly hinder an organisation's ability to develop future leaders. When high-potential employees are not identified early, leadership pipelines become driven by tenure or seniority rather than capability or future readiness. Cappelli and Keller (2014) argue that strategic talent management is the process through which organisations anticipate and address their need for human capital. It involves ensuring that people with appropriate skills can be promoted into the right positions at the right time. Similarly, Collings and Mellahi (2009) emphasize that identifying key positions and building a pool of high-potential employees are essential for long-term organisational success. In the context of government organisations, strategic talent management extends beyond recruitment to include leadership development, continuous learning, succession planning, mentoring, coaching, and career progression. Without such integrated systems, organisations struggle to cultivate leaders equipped to support future transformation.

6.1.3 Lack of leadership succession planning

It is essential for organisations to establish a strong succession planning practice in order to maintain their growth and continuity in an ever-changing business environment (Ingale, 2024). A lack of structured succession planning remains a critical barrier to preparing future leaders. When organisations do not establish clear succession pipelines, leadership transitions become reactive rather than strategic, resulting in capability gaps when senior leaders retire, change roles, or leave the organisation. According to Kim & Lee (2024), a succession plan is a deliberate and systematic approach designed to ensure leadership continuity in key positions, developing and retaining future leaders. Studies (Kim & Lee, 2024; Ingale, 2024) shows that effective succession planning requires identifying critical leadership roles, assessing future talent needs, and developing high-potential employees through targeted learning, mentoring, and career pathways. Without these systems, organisations face difficulty determining emerging leaders who could be developed, and which competencies are required for future roles, ultimately weakening the leadership pipeline and limiting long-term organisational continuity. Ingale (2024) also argues that succession planning strengthens talent retention and competency development.

6.2 Leadership Resistance to Change

Leadership resistance to change remains a major challenge in preparing future leaders within the public sector. Sometimes leaders may resist engaging with leadership development programs, adopting new leadership models, or learning about emerging digital tools and AI-enabled workflows. This slows down the development of modern competencies and limits organisational adaptability. According to Fernandes et al. (2025), leaders may hold negative attitudes with regards to learning and development initiatives while also being less effective in guiding their followers. Oreg et al. (2018) argue that leaders can resist learning initiatives because of discomfort with new technologies, fear of losing control, or preference for familiar routines. Such resistance limits leaders' ability to demonstrate growth-oriented behaviours and weakens efforts to develop a future-ready leadership pipeline. In a government context, resistance is often amplified by rigid procedures and bureaucratic structures, making it difficult to embed new practices that support future-ready leadership (Fernandez & Rainey, 2017). This aligns with Elliott's (2020) findings that organisational structures, resistance to change, and resource constraints can significantly influence organisational development and change. In addition, Elliott (2009) states that overcoming resistance requires building change readiness through clear communication, and supportive mechanisms. The challenges identified in this paper emphasize the urgent need for a more coherent and

future-focused leadership development approach within Dubai Government organisations. Bureaucratic rigidity, rapid technological disruption, fragmented capability systems, and rising expectations for ethical governance collectively indicate that traditional leadership models are no longer sufficient. These pressures reinforce the need to adopt a unified competency framework that equips leaders with digital intelligence, strategic foresight, agile and innovative thinking, and collaborative governance skills. Together, these competencies provide a structured response to current leadership challenges and establish a strong foundation for long-term capability development and institutional resilience. Dubai Government organisations require capable and effective leaders now more than ever, to confront the complex threats and challenges of the modern world.

7. Conclusion

In spite of the robust international research interest in understanding how leadership competencies are evolving in response to global administrative and technological change, there is still limited work examining the specific competencies required for future leaders within Dubai Government organisations. The rapid transformation of government systems in Dubai, driven by technological advancement, evolving societal expectations, and growing complexity in public-sector service delivery requires a new generation of leaders equipped with advanced, future-focused competencies. By examining the emerging key challenges facing future leaders in Dubai Government and highlighting the need for a more coherent and future-ready leadership approach, this study emphasizes that preparing future leaders in Dubai Government organisations requires a deeper understanding of the behavioural, strategic, and digital capabilities needed to navigate in an increasingly complex governance environment. As Dubai Government continues to advance its innovation-driven public-sector agenda, strengthening the capability of future leaders will require more than technical expertise; future leaders will need to be able to anticipate emerging challenges, respond to uncertainty, and uphold strong standards of governance and public trust. These considerations reinforce the importance of investing in leadership development approaches that support long-term resilience and ensure that government organisations remain capable of delivering effective citizen-centred service delivery in a dynamic and evolving environment.

Ethics Declaration: The present research study relies solely on secondary sources and publicly available literature. As no human participants, personal data, or experimental interventions were involved, formal ethical approval was not required.

AI Declaration: Generative AI tools (ChatGPT) were used only in a limited manner to assist with paraphrasing and idea generation during the writing process. No AI tools were involved in producing the core analysis, arguments, or conclusions. The author takes full responsibility for the originality, accuracy, and final content of the paper.

References

Adie, K. (2024) 'Reframing leadership capability in the public sector: Competencies for a rapidly changing governance landscape', *Journal of Public Administration Research and Theory*, Vol. 34 No. 2, pp. 215–232.

Anos, C. (2025) Ensuring leadership continuity: An integrative review of succession planning, leadership development and organisational memory. *Edelweiss Applied Science and Technology*, Vol. 9, No. 4, pp. 2869-2877.

Asiri, M. (2026) Leadership Competencies for Future Public Administrators: Bridging Higher Education and Government Practices. *EDUCATION AND INDUSTRY REVIEW*, Vol. 1 No.1

Bass, B.M. (2008) *The Bass handbook of leadership: Theory, research and managerial applications*. 4th ed. New York: Free Press.

Bass, B.M. and Avolio, B.J. (1994) *Improving organisational effectiveness through transformational leadership*. Thousand Oaks, CA: Sage.

Bersin, J. (2020) 'The rise of the capability academy: A new model for learning and development'. Bersin Academy / Deloitte Insights.

Brown, M.E., Treviño, L.K., and Harrison, D.A. (2005) 'Ethical leadership: A social learning perspective', *Organizational Behavior and Human Decision Processes*, Vol. 97, No. 2, pp. 117–134.

Brungardt, C. (1996) 'The making of leaders: A review of the research in leadership development and education', *The Journal of Leadership Studies*, Vol. 3, No. 3, pp. 81–95.

Cappelli, P., and Keller, J.R. (2014) 'Talent management: Conceptual approaches and practical challenges', *Annual Review of Organizational Psychology and Organizational Behavior*, Vol. 1, pp. 305–331. https://doi.org/10.1146/annurev-orgpsych-031413-091314

Collings, D.G., and Mellahi, K. (2009) 'Strategic talent management: A review and research agenda', *Human Resource Management Review*, Vol. 19, No. 4, pp. 304–313.

Day, D.V, Fleenor J.W, Atwater L.E, Sturm R.E, McKee R.A. 2014, 'Advances in leader and leadership development: A review of 25 years of research and theory', *The Leadership Quarterly,* Vol. 25, pp. 63-82.

Digital Dubai (2025) *UAE Digital Government Strategy 2025*. Available at: https://www.digitaldubai.ae/initiatives/digital-government-strategy

Digital Dubai (2026) *AI+ Program: Government Workforce Transformation*. Available at**:** https://www.digitaldubai.ae

Dubai Government Human Resources Department (DGHR) (2026) *Official website*. Available at: https://www.dghr.gov.ae

Eaves, S., Walton, S., and Winter, J. (2026) *Leadership in complex systems: Rethinking capability for an uncertain world*. London: Routledge.

Eisenbeiss, S.A. (2012) 'Re-thinking ethical leadership: An interdisciplinary integrative approach', *The Leadership Quarterly*, Vol. 23, No. 5, pp. 791–808.

Elliott, C. (2020) 'Rethinking leadership development: Building learning-driven and future-ready capability systems', *Human Resource Development Review*, Vol. 19 No. 4, pp. 345–362**.**

Fernandes, A., Silva, C. and Duarte, M. (2025) 'Leadership competencies for a digitally transformed public sector: Rethinking capability development for future governance', *Public Management Review*, Vol. 27, No. 4, pp. 612–630.

Fernandez, S., and Rainey, H.G. (2017) 'Managing successful organizational change in the public sector', *Public Administration Review*, Vol. 77, No. 6, pp. 915–924. https://doi.org/10.1111/puar.12816

Government of Dubai (2018) *Human Resources Management Law No. 8 of 2018*. Available at: https://www.dghr.gov.ae

Government of Dubai (2023) *Dubai Economic Agenda D33*. Available at: https://www.d33.ae

Government of Dubai Media Office (2024) *Dubai Government HR Strategic Initiatives Announcement*. Available at: https://mediaoffice.ae (Accessed: 10 September 2026).

Government of Dubai Media Office (2026) *Launch of the AI+ Workforce Transformation Program*. Available at: https://mediaoffice.ae/news

Heifetz, R.A., Grashow, A., and Linsky, M. (2009) *The practice of adaptive leadership: Tools and tactics for changing your organization and the world*. Boston, MA: Harvard Business Press.

Horner, M. 1997, Leadership theory: past, present and future, *Team Performance Management*,Vol. 3, No. 4, pp. 270-287.

Ingale, A. (2024) 'Succession planning and leadership development are important in creating a talent pipeline within human resource management'. *SSRN Working Paper*. Available at:

Jarbandhan, D.B. (2021) 'Ethical public sector leadership and good governance', *Administratio Publica*, Vol. 29, No. 2, pp. 24–48.

Kim, S., and Lee, J. (2024) 'Digital leadership and public sector innovation: Examining the role of leaders in accelerating digital transformation', *Government Information Quarterly*, Vol. 41, No. 2, pp. 101–118.

Mathias, M. (2017) 'Leadership development in governments of the United Arab Emirates: Re-framing a wicked problem', *Teaching Public Administration*, Vol. 35, No. 2, pp. 157–172.

McKinsey & Company (2023) *The State of Organizations 2023: Ten shifts transforming organizations*. McKinsey Global Institute.

Mohammed Bin Rashid School of Government (2024) *Annual report 2024: Government leadership, policy innovation, and public sector capability development*. Dubai: MBRSG Publishing.

Northouse, P.G. (2022) *Leadership: Theory and Practice*. Thousand Oaks, CA: Sage Publications.

Oreg, S., Bartunek, J. M., Lee, G., & Do, B. (2018) *An affect-based model of recipients' responses to organizational change events*. Academy of Management Review, Vol. 43, No. 1**,** pp. 65–86.

Organisation for Economic Co-operation and Development (2017) *Skills for a high-performing civil service*. Paris: OECD Publishing.

Scheepers, C.B., and Storm, L. (2019) 'Authentic leadership and follower trust: The moderating role of procedural justice', *SA Journal of Industrial Psychology*, Vol. 45, pp. 1–10**.**

Training Industry (2024) *Training Industry Report 2024: State of the training market*. Training Industry, Inc.

Tursunbayeva, A., and Gal, H.C.B. (2024) 'Adoption of artificial intelligence: A TOP framework-based checklist for digital leaders', *Business Horizons*, Vol. 67, No. 4, pp. 357–368**.**

UAE Government (2023) *UAE Artificial Intelligence Strategy 2031*. Available at: https://u.ae/en/about-the-uae/digital-uae/ai (Accessed: 10 September 2026).

Governing Curriculum Innovation: An Integrated Curriculum Governance Framework for Entrepreneurship Education

Michal Lukáč and Peter Pisár
Institute of Management, University of Ss. Cyril and Methodius in Trnava, Slovakia

michal.lukac@ucm.sk
peter.pisar@ucm.sk

Abstract: Higher education institutions are under increasing pressure to redesign study programmes in response to digital transformation, artificial intelligence, sustainability and rapidly changing labour market requirements. While curriculum innovation has received considerable attention in higher education research, existing studies have primarily examined curriculum design, academic leadership, stakeholder engagement and governance as separate research areas. Comparatively less attention has been devoted to explaining how these elements interact throughout the curriculum innovation process. This conceptual paper addresses this gap by proposing an Integrated Curriculum Governance Framework that conceptualises curriculum innovation as a continuous governance cycle rather than a linear curriculum development process. The framework is developed through a conceptual analysis of literature on curriculum innovation, higher education governance, academic leadership, stakeholder engagement and organisational learning. It combines six operational phases-environmental scanning, stakeholder co-design, curriculum governance, curriculum implementation, competency assessment and continuous improvement—with five cross-cutting governance principles: participation, accountability, transparency, evidence-based decision-making and organisational learning. The proposed framework extends existing curriculum development models by integrating governance mechanisms that support institutional coordination, collaborative decision-making and continuous curriculum improvement. Although developed in the context of entrepreneurship education, the framework is applicable across different higher education disciplines. The paper contributes to theory by linking previously disconnected research streams and provides practical guidance for university leaders, programme guarantors and quality assurance units seeking to strengthen governance arrangements supporting curriculum innovation.

Keywords: Curriculum innovation, Higher education governance, Curriculum governance, Academic leadership, Stakeholder engagement, Organisational learning, Entrepreneurship education

1. Introduction

Higher education institutions operate in an increasingly dynamic environment shaped by digital transformation, demographic change, sustainability challenges and evolving labour market expectations. Universities are expected to prepare graduates who possess not only disciplinary knowledge but also entrepreneurial thinking, digital competencies, problem-solving abilities and the capacity for lifelong learning. These developments require educational programmes to evolve more rapidly than in the past while maintaining academic quality, institutional accountability and compliance with accreditation requirements (European Commission, 2022; OECD, 2023).

Curriculum innovation has therefore become a strategic priority for universities seeking to remain relevant in changing educational and professional environments. Contemporary curriculum development extends beyond updating course content or introducing new teaching methods. It increasingly involves interdisciplinary collaboration, stakeholder engagement, competency-based education and continuous programme evaluation. In this context, curriculum innovation represents an institutional process requiring coordination across academic, organisational and external environments rather than an isolated educational activity (Barnett & Coate, 2005; Fraser & Bosanquet, 2006).

Entrepreneurship education provides a particularly relevant context for examining curriculum innovation. Universities are expected to develop graduates capable of recognising opportunities, creating value and responding to technological and market change. Consequently, entrepreneurship education increasingly combines disciplinary knowledge with experiential learning, project-based teaching, digital technologies and cooperation with external stakeholders (Fayolle & Gailly, 2008; Neck & Greene, 2011). These developments require universities not only to redesign educational content but also to establish governance arrangements capable of supporting continuous curriculum adaptation.

Despite growing interest in curriculum innovation, existing research remains fragmented. Studies on curriculum development primarily examine learning outcomes, competency frameworks and pedagogical approaches, whereas governance research focuses on institutional structures, leadership and organisational change. Stakeholder engagement, quality assurance and organisational learning are frequently discussed as

complementary elements rather than as integrated components of curriculum innovation. Consequently, limited attention has been devoted to explaining how universities can organise and govern curriculum innovation as a continuous institutional process (Bleiklie & Kogan, 2007; Kezar, 2014; Bovill, 2020).

This gap has become increasingly important as universities respond to new challenges associated with artificial intelligence, digital transformation, sustainability and rapidly changing competency requirements. Curriculum revision can no longer be viewed solely as a periodic response to accreditation procedures. Instead, universities require governance arrangements that enable continuous environmental scanning, collaborative decision-making, implementation, evaluation and organisational learning. Such an approach supports institutional adaptability while ensuring that educational programmes remain aligned with societal and labour market expectations.

This paper addresses the identified gap by proposing an Integrated Curriculum Governance Framework. The framework conceptualises curriculum innovation as an iterative governance cycle supported by strategic planning, stakeholder collaboration, institutional governance and continuous improvement. Unlike conventional curriculum development models that primarily describe educational design processes, the proposed framework focuses on the institutional mechanisms that enable universities to manage curriculum innovation over time.

This study adopts a conceptual framework development approach grounded in the literature on curriculum innovation, higher education governance, academic leadership and stakeholder engagement. Rather than evaluating a specific curriculum or educational intervention, the paper develops a transferable governance framework intended to support curriculum planning and institutional decision-making across different higher education contexts.

The paper makes three principal contributions. First, it integrates previously disconnected strands of literature on curriculum innovation, governance and academic leadership into a coherent analytical framework. Second, it introduces curriculum innovation as a continuous governance cycle supported by participation, accountability, transparency, evidence-based decision-making and organisational learning. Third, it demonstrates how the framework may support higher education institutions in designing, implementing and continuously improving study programmes while responding to changing educational, technological and labour market conditions.

The remainder of the paper is organised as follows. Section 2 reviews the literature on curriculum innovation, governance, academic leadership and stakeholder engagement. Section 3 presents the proposed Integrated Curriculum Governance Framework. Section 4 discusses its potential application within higher education institutions. Section 5 examines the theoretical and practical implications of the framework, and the final section concludes the paper by outlining its contributions, limitations and directions for future research.

2. Literature Review

2.1 Curriculum Innovation and Governance

Universities are increasingly expected to respond to technological, economic and societal change by redesigning their study programmes. Traditional curriculum development, centred primarily on disciplinary knowledge, is gradually being replaced by approaches that integrate transferable skills, entrepreneurship, digital literacy and collaboration with external stakeholders (Barnett & Coate, 2005; Biggs & Tang, 2011). Curriculum innovation is therefore understood as a continuous process of designing, implementing and reviewing educational programmes to ensure their relevance for students, employers and society (Fraser & Bosanquet, 2006).

As curriculum innovation has become more complex, governance has emerged as an important determinant of successful curriculum reform. Governance extends beyond formal organisational structures and includes the processes through which universities coordinate decision-making, allocate responsibilities and involve internal and external stakeholders in curriculum development (OECD, 2022). Effective curriculum governance requires cooperation among academic staff, university leadership, employers, accreditation bodies and students, supported by transparent responsibilities and shared institutional objectives (Bleiklie & Kogan, 2007).

Governance influences the entire curriculum development process. During programme design, it facilitates stakeholder participation and alignment with labour market needs. During implementation, it supports resource allocation, interdisciplinary cooperation and organisational capacity. During programme evaluation, governance enables systematic feedback and organisational learning that inform future curriculum development (European Commission, 2022).

Although governance has become an important theme in higher education research, most studies examine institutional governance or quality assurance more broadly rather than governance mechanisms directly supporting curriculum innovation. Consequently, relatively limited attention has been devoted to explaining how governance structures can coordinate curriculum development as a continuous institutional process.

2.2 Academic Leadership and Stakeholder Engagement

Curriculum innovation requires academic leadership capable of coordinating organisational change while creating conditions for collaboration among internal and external stakeholders. Unlike hierarchical management, academic leadership in higher education is typically characterised by professional autonomy, shared responsibility and consensus-building, reflecting the collegial nature of university decision-making (Bolden et al., 2009).

Introducing curriculum innovation often requires changes in established teaching practices, programme structures and institutional routines. Such changes may generate resistance among academic staff, particularly where curriculum reform affects disciplinary boundaries or resource allocation. Effective academic leaders therefore play an important role in facilitating communication, encouraging participation and building institutional commitment to curriculum development (Kezar, 2014).

Leadership also contributes to curriculum innovation by aligning programme development with institutional strategy, supporting interdisciplinary cooperation and promoting organisational learning. Transformational and distributed leadership approaches have been identified as particularly appropriate in higher education because they encourage collective responsibility and knowledge sharing across academic communities (Bolden et al., 2009).

Academic leadership alone, however, is insufficient to ensure successful curriculum innovation. Universities increasingly recognise the value of engaging employers, students, graduates and professional organisations throughout curriculum development. Stakeholder participation improves curriculum relevance, supports competency-based education and strengthens links between universities and professional practice (Healey et al., 2014; Bovill, 2020).

Despite these developments, stakeholder engagement often remains project-based or linked to accreditation procedures rather than being embedded within institutional governance. Consequently, universities require governance arrangements that support continuous stakeholder participation throughout the curriculum lifecycle rather than at isolated stages of programme development.

2.3 Research Gap and Conceptual Contribution

Research on curriculum innovation has generated valuable knowledge regarding educational design, academic leadership, stakeholder engagement and higher education governance. However, these areas have generally developed as separate research streams, providing limited explanation of how governance mechanisms coordinate curriculum innovation throughout its lifecycle.

Most curriculum models focus on learning outcomes, teaching methods or competency development, whereas governance research primarily examines institutional structures, leadership and quality assurance. Comparatively less attention has been devoted to explaining how strategic planning, stakeholder participation, governance arrangements and organisational learning interact as mutually reinforcing components of curriculum innovation.

To address this gap, this paper proposes an Integrated Curriculum Governance Framework that conceptualises curriculum innovation as a continuous governance cycle. The framework combines strategic environmental scanning, collaborative governance, curriculum implementation, competency assessment and continuous organisational learning into a single conceptual model capable of supporting both institutional decision-making and curriculum development.

These approaches offer different strengths but also have limitations. Curriculum design research provides guidance on learning outcomes and teaching methods (Biggs & Tang, 2011) but gives less attention to institutional responsibilities and decision-making. Governance studies explain organisational structures and authority (Bleiklie & Kogan, 2007; de Boer et al., 2007), but do not always show how these arrangements support curriculum changes in practice. Research on student partnership highlights participation (Healey et al., 2014; Bovill, 2020), although participation alone does not establish who is responsible for implementation or how

feedback leads to further revision. The proposed framework seeks to connect these perspectives rather than replace them.

3. Integrated Curriculum Governance Framework

3.1 Theoretical Foundations of the Framework

Previous research has substantially advanced knowledge on curriculum development, academic leadership, stakeholder engagement and quality assurance in higher education. Curriculum studies have primarily focused on programme design and learning outcomes, whereas governance research has examined institutional decision-making and organisational change. Stakeholder engagement and quality assurance have generally been treated as complementary activities rather than integrated components of curriculum innovation (Barnett & Coate, 2005; Bleiklie & Kogan, 2007; Bovill, 2020).

As a result, universities often possess guidance on individual aspects of curriculum development but lack an integrated governance perspective explaining how strategic planning, stakeholder collaboration, implementation and continuous improvement should be coordinated throughout the curriculum lifecycle. In practice, curriculum reform frequently remains linked to accreditation procedures or periodic programme reviews instead of being managed as a continuous institutional process.

These challenges have become more pronounced as universities respond to digital transformation, artificial intelligence, sustainability and changing labour market expectations. Institutions are increasingly required to revise educational programmes while maintaining academic quality, institutional accountability and responsiveness to external developments (European Commission, 2022; OECD, 2023).

To address these challenges, this study proposes an Integrated Curriculum Governance Framework that conceptualises curriculum innovation as an iterative governance cycle rather than a linear curriculum development process. The framework integrates strategic environmental scanning, stakeholder co-design, governance arrangements, curriculum implementation, competency assessment and continuous improvement within a single analytical model. Unlike conventional curriculum development approaches, it assumes that curriculum innovation is sustained through organisational learning, stakeholder collaboration and evidence-based institutional decision-making.

3.2 Governance Principles Underpinning the Framework

The proposed framework is built on the assumption that curriculum innovation should be understood as a governance process rather than solely as an educational or administrative activity. While curriculum development is commonly associated with programme design and teaching methods, its successful implementation depends on institutional arrangements that coordinate decision-making, allocate responsibilities and enable collaboration among internal and external stakeholders.

From this perspective, governance provides the institutional conditions under which curriculum innovation can be planned, implemented and continuously improved. The framework therefore extends beyond curriculum design by emphasising how universities organise decision-making processes, involve stakeholders and use evidence to support strategic programme development.

The framework is guided by five governance principles that operate throughout all stages of curriculum innovation. These principles are not conceived as sequential phases but as cross-cutting mechanisms supporting the effectiveness and sustainability of curriculum development.

Participation

Curriculum innovation requires active participation from a broad range of stakeholders. Academic staff contribute disciplinary expertise, university leadership provides strategic direction, while employers, students, graduates and professional organisations offer perspectives on evolving competency requirements. Broader participation improves curriculum relevance, strengthens institutional legitimacy and facilitates the integration of practical knowledge into programme development (Ansell & Gash, 2008; Healey et al., 2014).

Rather than limiting stakeholder involvement to formal consultations, the proposed framework encourages continuous engagement throughout curriculum planning, implementation and evaluation.

Accountability

Successful curriculum innovation requires clearly defined responsibilities at different organisational levels. Programme guarantors, academic departments, faculty management and quality assurance units perform complementary functions throughout curriculum development. Transparent allocation of responsibilities supports consistent decision-making and facilitates institutional accountability towards students, accreditation bodies and society (de Boer et al., 2007).

Within the proposed framework, accountability extends beyond regulatory compliance by supporting responsible management of curriculum quality and long-term programme development.

Transparency

Transparent governance improves trust among institutional actors and external stakeholders. Curriculum decisions should therefore be supported by explicit procedures, clearly defined evaluation criteria and open communication regarding programme objectives, expected competencies and quality assurance processes.

Transparency also facilitates stakeholder participation by enabling different actors to understand how curriculum decisions are made and how their contributions influence programme development (Bleiklie & Kogan, 2007).

Evidence-Based Decision-Making

Curriculum innovation should be informed by systematic evidence rather than individual preferences or isolated institutional practices. Labour market analyses, graduate employment data, employer feedback, accreditation reports and international policy documents provide valuable information supporting curriculum planning and revision (OECD, 2023; European Commission, 2022).

Within the framework, evidence is used not only during environmental scanning but throughout the entire governance cycle, supporting implementation, evaluation and continuous improvement.

Organisational Learning

Curriculum innovation is conceptualised as an iterative process supported by institutional learning. Universities continuously acquire knowledge from programme evaluation, stakeholder feedback, graduate outcomes and educational practice. This information enables institutions to revise curricula, improve governance arrangements and respond more effectively to changing external conditions (Argyris & Schön, 1996).

Organisational learning therefore represents the mechanism that transforms curriculum evaluation into future curriculum innovation, creating a continuous cycle of institutional adaptation.

Framework Summary

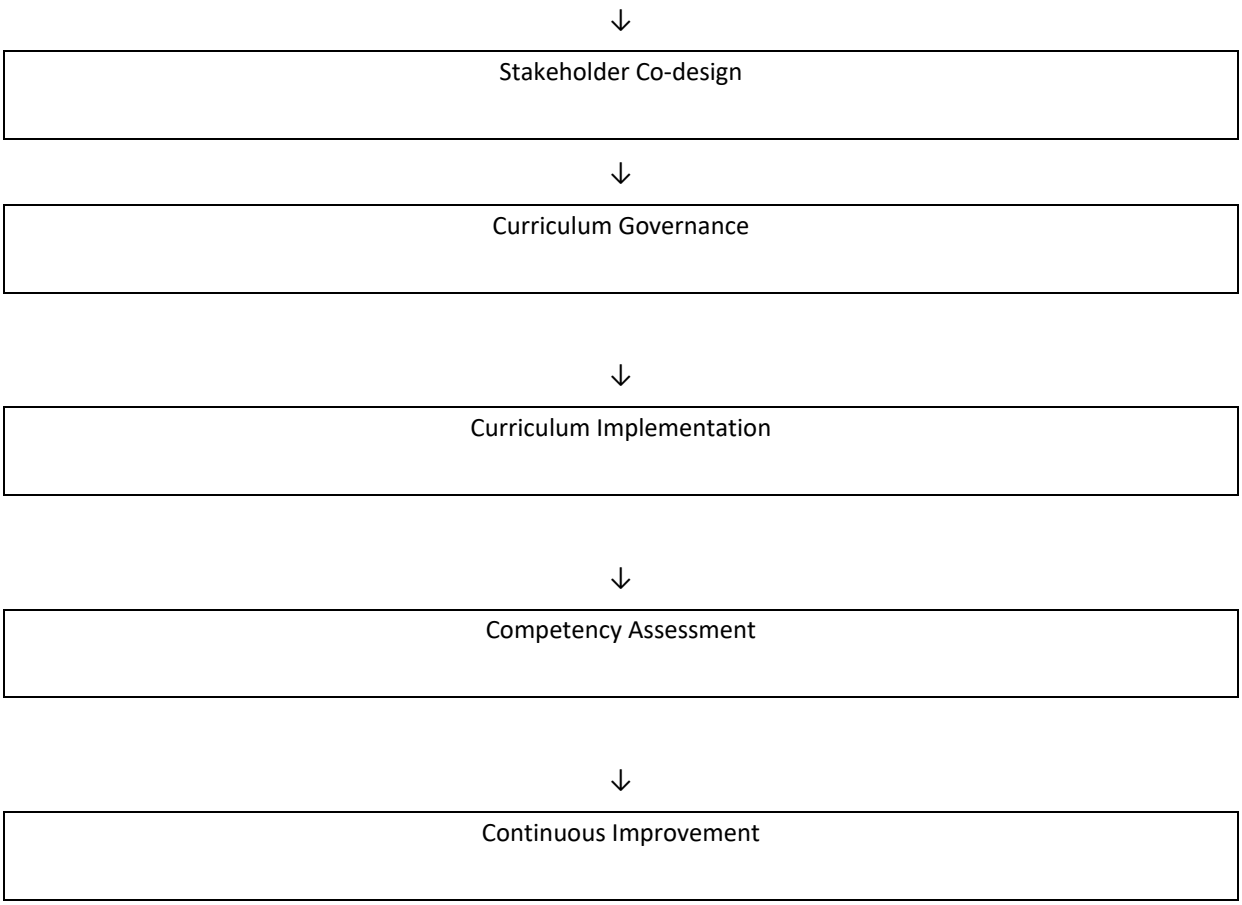
Together, these governance principles provide the institutional foundation of the proposed framework. While the six operational phases describe how curriculum innovation progresses over time, the governance principles explain how universities organise decision-making, coordinate stakeholder participation and sustain continuous curriculum improvement. The interaction between operational phases and governance principles distinguishes the proposed framework from conventional curriculum development models, which primarily focus on programme design without explicitly addressing the institutional processes that support long-term curriculum innovation.

GOVERNANCE PRINCIPLES

Participation | Accountability | Transparency | Evidence | Organisational Learning

↓

Environmental Scanning



The governance principles therefore operate across all phases of the framework, ensuring that curriculum innovation remains adaptive, collaborative and evidence-informed rather than a sequence of isolated administrative activities.

4. Applying the Framework in Higher Education Institutions

Instead of presenting curriculum innovation as a sequence of educational activities, the proposed framework may serve as a governance tool supporting institutional decision-making throughout the curriculum lifecycle. It provides universities with a structured approach for coordinating strategic planning, stakeholder engagement, implementation and continuous programme evaluation. Although the framework was developed with entrepreneurship education in mind, its principles are applicable to curriculum innovation across different academic disciplines.

4.1 Strategic Planning and Environmental Scanning

The framework begins with strategic analysis rather than curriculum design itself. Universities should first identify the external and internal factors that justify curriculum innovation, including labour market developments, technological change, demographic trends, public policy priorities and accreditation requirements. Such analyses enable institutional leaders to define educational priorities using evidence rather than individual preferences or short-term organisational pressures (OECD, 2023; European Commission, 2022).

At the institutional level, environmental scanning also supports strategic alignment between curriculum development and broader university objectives. It helps programme teams identify future competency needs, prioritise educational investments and anticipate changes that may influence graduate employability.

4.2 Collaborative Curriculum Governance

The second stage focuses on organising collaboration among institutional and external stakeholders. Rather than concentrating exclusively on curriculum content, universities should establish governance arrangements that facilitate participation, define responsibilities and coordinate decision-making throughout programme development.

The proposed framework recommends involving academic staff, university leadership, students, graduates, employers and professional organisations at different stages of curriculum planning. Continuous stakeholder participation contributes to curriculum relevance while improving transparency and institutional legitimacy (Ansell & Gash, 2008; Bovill, 2020).

From a governance perspective, curriculum development becomes a shared institutional responsibility instead of an activity carried out exclusively by individual academic departments.

4.3 Organising Curriculum Implementation

Implementation requires more than introducing new courses or teaching methods. Universities need organisational capacity to support curriculum delivery, including staff development, digital infrastructure, interdisciplinary cooperation and collaboration with external partners.

The framework therefore emphasises institutional preparedness as a prerequisite for successful curriculum innovation. Decisions regarding project-based learning, entrepreneurship education, digital technologies or the responsible use of artificial intelligence should be coordinated through institutional governance rather than introduced as isolated educational initiatives. Such an approach improves consistency across study programmes and supports long-term curriculum sustainability (Biggs & Tang, 2011; UNESCO, 2023).

4.4 Monitoring Curriculum Quality and Institutional Learning

The final stage focuses on transforming curriculum evaluation into organisational learning. Information obtained from student feedback, graduate outcomes, employer surveys, accreditation reviews and internal quality assurance processes provides evidence for future curriculum revision.

Within the proposed framework, evaluation serves not only to assess educational quality but also to support institutional learning and adaptive governance. Universities capable of systematically incorporating evaluation results into future programme development are better positioned to respond to technological change, labour market developments and evolving educational expectations (Argyris & Schön, 1996; OECD, 2022).

Rather than concluding the curriculum development process, evaluation initiates a new cycle of strategic analysis, ensuring that curriculum innovation remains continuous rather than episodic.

The proposed framework demonstrates that effective curriculum innovation depends not only on educational design but also on the quality of institutional governance. Strategic planning, collaborative decision-making, organisational capacity and continuous learning should therefore be regarded as mutually reinforcing dimensions of curriculum development. By integrating these elements into a single governance cycle, universities may improve their ability to adapt educational programmes to changing societal, technological and labour market conditions.

5. Discussion

The proposed framework builds on existing research on curriculum innovation, higher education governance and academic leadership while offering a more integrated perspective on curriculum development. Previous studies have demonstrated the importance of competency-based education, stakeholder engagement and organisational learning in improving higher education quality (Barnett & Coate, 2005; Biggs & Tang, 2011; Kezar, 2014). However, these concepts have largely been examined independently, with limited attention devoted to the governance processes that connect them throughout curriculum innovation.

A central contribution of this study is the conceptualisation of curriculum innovation as a continuous governance cycle rather than a sequence of isolated educational activities. Existing curriculum models frequently concentrate on programme design, learning outcomes or teaching methods, whereas governance studies primarily examine institutional structures and decision-making processes (Bleiklie & Kogan, 2007; de Boer et al., 2007). The proposed framework integrates these perspectives by demonstrating how strategic planning, stakeholder collaboration, institutional governance and organisational learning collectively support curriculum innovation.

The framework also extends current discussions on stakeholder participation. Earlier studies have consistently highlighted the importance of involving employers, students and external partners in curriculum development (Healey et al., 2014; Bovill, 2020). Nevertheless, stakeholder engagement is often presented as a consultation activity conducted during programme design. The present framework argues that participation should continue throughout implementation, competency assessment and curriculum review. This broader understanding

strengthens institutional adaptability and enables universities to respond more effectively to changing labour market expectations.

Another contribution concerns the relationship between governance and academic leadership. Previous research has shown that successful curriculum reform depends on leadership capable of coordinating organisational change and building consensus among academic communities (Bolden et al., 2009; Kezar, 2014). The proposed framework complements this perspective by emphasising that leadership alone is insufficient without governance arrangements that clarify responsibilities, support evidence-based decision-making and establish mechanisms for continuous institutional learning. Leadership therefore acts within governance structures rather than replacing them. The literature also points to tensions that the framework cannot fully resolve. Wider stakeholder participation may improve the relevance of a programme, but it can make decisions slower and responsibilities less clear. Formal governance arrangements can strengthen accountability, while excessive procedures may reduce flexibility in curriculum development. The framework therefore treats participation, accountability and organisational learning as principles that need to be balanced in different institutional settings, not as guarantees of successful innovation.

The findings also contribute to current debates on higher education policy. European universities are expected to modernise curricula in response to digital transformation, artificial intelligence, sustainability objectives and changing competency requirements (European Commission, 2022; OECD, 2023). Many institutions, however, continue to approach curriculum reform primarily as an accreditation exercise or periodic administrative review. The proposed framework suggests that curriculum innovation should instead become an integral component of institutional governance, allowing universities to adapt educational programmes more systematically and proactively.

An additional strength of the framework lies in its potential transferability. Although developed in the context of entrepreneurship education, its governance principles are not discipline-specific. Strategic environmental scanning, collaborative governance, competency-oriented assessment and continuous organisational learning are equally relevant for engineering, business, public administration, healthcare and other professionally oriented study programmes. The framework may therefore provide a common governance structure while allowing institutions to adapt curriculum content to disciplinary requirements.

The proposed framework nevertheless has several limitations. As a conceptual study, it has not yet been empirically validated in institutional settings. The relationships between governance arrangements and curriculum outcomes remain theoretically grounded and require empirical testing. Future research should examine how universities apply the framework in practice and whether different governance arrangements influence curriculum quality, graduate competencies and institutional adaptability. Comparative studies across universities and national higher education systems may further refine the proposed governance model and identify contextual factors affecting its implementation.

Despite these limitations, the framework offers a structured conceptual basis for understanding curriculum innovation as an institutional governance process. It provides an analytical perspective that connects strategic planning, stakeholder engagement, implementation and continuous improvement within a single governance cycle. This integrated approach may support future theoretical development while also offering practical guidance for higher education institutions seeking to strengthen the governance of curriculum innovation.

5.1 Contributions to Theory and Practice

Theoretical contribution

The proposed **Integrated Curriculum Governance Framework** contributes to higher education research by integrating curriculum innovation, governance, academic leadership and stakeholder engagement into a single analytical perspective. While previous studies have mainly examined these topics separately (Barnett & Coate, 2005; Bleiklie & Kogan, 2007; Kezar, 2014), the proposed framework conceptualises curriculum innovation as a continuous governance process. By linking strategic planning, stakeholder collaboration, curriculum implementation and organisational learning, it extends existing curriculum development models beyond their traditional pedagogical focus and highlights the institutional mechanisms supporting long-term curriculum innovation.

Practica contribution

From a practical perspective, the framework provides universities with a structured governance approach to curriculum development. It supports strategic planning, stakeholder participation and evidence-based decision-

making throughout the curriculum lifecycle, rather than limiting programme revision to accreditation cycles or administrative requirements. The framework may assist university leaders, programme guarantors and quality assurance units in coordinating curriculum innovation while maintaining academic quality, institutional accountability and responsiveness to changing labour market needs.

6. Future Research

As a conceptual study, the proposed framework requires empirical validation in different higher education contexts. Future research should examine how governance arrangements influence curriculum quality, stakeholder collaboration and graduate competencies across universities and academic disciplines. Comparative studies may also explore how institutional characteristics and national higher education systems affect the implementation of curriculum governance, thereby contributing to further refinement of the proposed framework.

Acknowledgements

This work was supported by the national project Support for the Entrepreneurial and Innovation Potential of Students (Project No. 401101C937). The project is co-funded by the Ministry of Education, Science, Research and Sport of the Slovak Republic and the European Regional Development Fund.

Ethics Declaration: This study is a conceptual paper based exclusively on published literature and does not involve human participants, personal data or experimental procedures. Therefore, ethical approval and informed consent were not required.

AI Declaration: Generative AI tools were used solely for language editing and stylistic refinement of the manuscript. They were not used to generate the scientific content, conceptual framework, literature analysis or conclusions. The authors take full responsibility for the accuracy, originality and integrity of the work.

References

Argyris, C., & Schön, D. A. (1996). Organizational Learning II: Theory, Method, and Practice. Addison-Wesley.

Ansell, C., & Gash, A. (2008). Collaborative governance in theory and practice. Journal of Public Administration Research and Theory, 18(4), 543–571.

Barnett, R., & Coate, K. (2005). Engaging the Curriculum in Higher Education. Open University Press.

Biggs, J., & Tang, C. (2011). Teaching for Quality Learning at University (4th ed.). Open University Press.

Bleiklie, I., & Kogan, M. (2007). Organization and governance of universities. Higher Education Policy, 20(4), 477–493.

Bolden, R., Petrov, G., & Gosling, J. (2009). Distributed leadership in higher education: Rhetoric and reality. Educational Management Administration & Leadership, 37(2), 257–277.

Bovill, C. (2020). Co-creation in Learning and Teaching: The Case for a Whole-Class Approach in Higher Education. Higher Education Academy.

de Boer, H., Enders, J., & Schimank, U. (2007). On the way towards new public management? The governance of university systems in England, the Netherlands, Austria and Germany. In D. Jansen (Ed.), New Forms of Governance in Research Organizations (pp. 137–152). Springer.

European Commission. (2022). A European Strategy for Universities. Brussels: European Commission.

Fayolle, A., & Gailly, B. (2008). From craft to science: Teaching models and learning processes in entrepreneurship education. Journal of European Industrial Training, 32(7), 569–593.

Fraser, S. P., & Bosanquet, A. M. (2006). The curriculum? That's just a unit outline, isn't it? Studies in Higher Education, 31(3), 269–284.

Healey, M., Flint, A., & Harrington, K. (2014). Engagement Through Partnership: Students as Partners in Learning and Teaching in Higher Education. Higher Education Academy.

Kezar, A. (2014). How Colleges Change: Understanding, Leading, and Enacting Change. Routledge.

Neck, H. M., & Greene, P. G. (2011). Entrepreneurship education: Known worlds and new frontiers. Journal of Small Business Management, 49(1), 55–70.

OECD. (2022). Education Policy Outlook 2022: Transforming Pathways for Lifelong Learners. OECD Publishing.

OECD. (2023). Education at a Glance 2023: OECD Indicators. OECD Publishing.

UNESCO. (2023). Guidance for Generative AI in Education and Research. UNESCO.

Lagos as a Political Leadership Laboratory: Elite Recruitment, Political Succession and National Power in Nigeria's Fourth Republic

Rachel Osaretin Omoruyi Onor, Moses Metumara Duruji and Ugochukwu David Abasilim
Covenant University, Nigeria

rachel.omoruyi.onor@covenantuniversity.edu.ng
moses.duruji@covenantuniversity.edu.ng
ugochukwu.abasilim@covenantuniversity.edu.ng

Abstract: Lagos is a singularly important subnational political space in the Fourth Republic of Nigeria where electoral competition, party organisation, executive government, elite networks and access to electoral office overlap. The central question is not just why Lagos is economically and electorally relevant, but how political institutions and networks have worked over time to recruit, socialise, select, test, succeed and reproduce political actors, and when and how some of their accumulated political capital has become relevant to the national political arena. This article builds on the notion of the political leadership laboratory as an integrated meso level approach to analyzing these interrelated processes. The concept is not that recruitment, socialisation, candidate selection, political careers, patronage, and elite reproduction are new mechanisms. Its value is in its ability to combine these well-known processes in a lasting subnational political space and in its clear analysis of the potential for turning subnational political capital into national political influence. The study is based on academic scholarship, party documents, legal records, fiscal data and contemporaneous reporting, and a qualitative longitudinal case study and process tracing from 1999 onwards. The empirical analysis is organised around seven dimensions: recruitment, socialisation, selection, testing, succession, reproduction and nationalisation. The Tinubu period is a moment of political and organisational formation, the Fashola period is a moment of consolidation and adaptation, the Ambode period is a moment of testing the executive autonomy and coalition politics, the Sanwo Lulu period is a moment of reproduction and adaptation, and the national career of Lagos based political networks is a contingent moment of nationalisation. The study reveals the existence of enduring political networks and somewhat regularised recruitment and succession processes, as well as exclusion, conflict, replacement and adaptation. Lagos is thus an analytically relevant case to theorise how subnational political spaces can be used for leadership production and national elite circulation, but not as a case study that can be used to explain national political realities, nor as an example of mechanisms that are found everywhere.

Keywords: Political recruitment, Political succession, Elite reproduction, Subnational politics, Political leadership

1. Introduction

Lagos State is in an exceptional position in the Fourth Republic of Nigeria. It is a significant space for political contestation and leadership nurturing due to its economic value, voting power, organisational density and historical role in politics (Cheeseman and de Gramont, 2017; Kifordu, 2011). Research on Nigerian politics has explored the circulation of elites, party competition, patronage, clientelism and urban political organisation, but the processes by which the subnational arena can regularly recruit, socialise, select, test and reproduce political actors, and sometimes link the resulting political capital to national politics have not been fully engrafted into a single analytical framework (Ekundayo, 2017; Ojo, 2023).

The puzzle here is thus more precise than just saying that Lagos is politically relevant. The economic scale, population and electoral weight and historical importance of the city give reasons why political actors want to be influential in Lagos, but these alone do not show a political leadership laboratory. The analytical question is whether observable processes in the Lagos State political arena offer a sustained environment for political actors to enter into networks, gain political and organisational experience, gain access to political offices, face electoral and governing tests, become involved in succession, stay connected to the political network after a change in personnel, and, in certain cases, mobilise accumulated political capital beyond the state. This separation is crucial as it differentiates between the political conditions of structures and their modes of leadership production.

Based on classical elite theory and more recent studies on political recruitment, political selection, informal institutions, party organisation, political careers and political patronage, this article introduces the concept of the political leadership laboratory as a combined meso level concept. Classical elite theories focus on issues of concentration and circulation, as well as organisational control, while contemporary theories offer more specific explanations of who enters into political organisations, who becomes a candidate, how careers evolve and how formal institutions work with informal practices (Mosca, 1939; Pareto, 1935; Michels, 1962; Norris and Lovenduski, 1995; Helmke and Levitsky, 2004).

The contribution is thus integrative rather than novel mechanisms are responsible. Political recruitment accounts for entry, socialisation accounts for acquiring political knowledge, norms and relationships, filtering of aspirants accounted for by candidate selection, movement across offices and territorial levels accounted for by political career scholarship, organisational mobilisation accounted for by patronage and intermediary research, and continuity and replacement accounted for by elite reproduction. The political leadership laboratory poses the question of how these mechanisms interact repeatedly in a specific subnational context and how political capital gained through these mechanisms can later be applied to the national arena. (Rahat and Hazan, 2001; Borchert and Stolz, 2011).

The empirical study is qualitative and longitudinal in nature with a period from the fourth republic (1999–present date). It does not see the four careers of Bola Tinubu, Babatunde Fashola, Akinwunmi Ambode and Babajide Sanwo Olu as four separate biographies. Instead, these administrations and political episodes are used as evidence in a process tracing sequence. Political and organisational formation is explored during the period of Tinubu, consolidation and adaptation during Fashola, stress testing executive autonomy and candidate selection during Ambode, reproduction and adaptation during Sanwo Olu, and nationalisation of Lagos based networks during the subsequent national period. This is an analytical sequence and not a deterministic sequence. The seven dimensions are represented throughout the period, and specific episodes highlight certain mechanisms.

The study is guided by three questions. How are political actors recruited and socialised into the Lagos political arena? Second, what are the effects of formal and informal processes on selection, testing, succession and reproduction? Third, when can political capital generated in Lagos be useable in national politics? There is clearly a limited response to these questions. Lagos is not seen as representative of the nation, but as an analytically relevant case and national outcomes are interpreted as the result of interaction between Lagos-based resources, broader regional networks, individual political entrepreneurship, national party organisations and federal political incentives.

The rest of the article goes on like this. In Section 2, the theoretical framework is elaborated and adjacent concepts are differentiated. In Section 3, the methodology, evidence strategy, unit of analysis, process tracing design, alternative explanations and analytical transferability are outlined.

Section 4 argues that Lagos State becomes a subnational political arena and that the structural conditions that are brought into the leadership production process can be seen through tangible mechanisms. The laboratory is explored in section 5, through a sequence of formation, consolidation, stress testing, reproduction and adaptation. The contingent nationalisation of political capital is followed in section 6. The implications of the findings are explored in Section 7 and the scope conditions and limits of the argument are presented in Section 8.

2. Theoretical Framework: From Elite Domination to Subnational Political Leadership Production

Classical elite theory offers a basis for the analysis of the focus and reproduction of political power. Mosca (1939) points to the organisational benefits of a governing minority, Pareto (1935) focuses on the rotation and replacement of elites, Michels (1962) focuses on the tendency to the concentration of power within the organisation, and Mills (1956) emphasizes the relationship between control over strategic institutional positions and wider patterns of political, economic and organisational power. These views provide a crucial initial context: political power is not shared equally among all citizens, and formal democratic processes do not necessarily account for the acquisition of enduring power.

Classical elite theory, however, is not adequate to explain the mechanisms explored here. It cannot on its own make sense of access to political networks, selection of candidates, the processes of political career growth in subnational institutions, the organisation of party networks to access office and the potential for political resources created at the subnational level to be mobilised in the national arena. This study thus follows the classical theory but not as an exhaustive account of subnational leadership production.

The concept of political recruitment scholarship focuses on how people get into the party, into the legislative body, into the executive branch and other political roles rather than on the fact that there is an elite. The recruitment process consists of filtering, selection and career development and a large number of actors can be recruited for political activity while only a small number get influential positions (Norris and Lovenduski, 1995; Norris, 2009). This literature serves as a foundation for understanding who accesses the political network in Lagos, how they access it, and the types of political capital they bring to the network.

A second mechanism is provided by candidate selection research. Selection processes influence who gets promoted to candidacy and who doesn't, and political parties regulate who can be a candidate by formal rules and informal practices (Rahat and Hazan, 2001; Hazan and Rahat, 2010). The literature on party systems in Africa also reveals that the nomination process can become a battleground over the control of state power, with the capacity for those who control nominations having the power to control the state (Bogaards, 2004; Weghorst and Bernhard, 2014). Nigerian scholarship also reveals the interplay between formal party processes and informal influence, sponsorship and elite negotiation (Ikeanyibe, 2014; Demarest, 2022).

On the basis of these literatures, this article introduces the notion of the political leadership laboratory. A political leadership laboratory is a long-term subnational political space where political actors are recruited, socialised, selected, experienced in electoral and government roles, placed in succession processes, integrated into ongoing political networks, and may be able to translate political capital that they have been building over time into broader national political influence.

The idea is different from neighbouring approaches in three ways. First, it is not strictly actor-centred, it is arena centred. Questions of recruitment and career studies typically focus on the question of who enters politics, and how individual careers unfold, while the laboratory also addresses the question of whether a specific subnational environment repeatedly offers the organisation, political opportunities and networks within which such careers can take shape. Second, it is process integrative. Analytically these are different from each other but empirically related: recruitment, socialisation, selection, testing, succession and reproduction. Third, it thoroughly explores subnational to national conversion. The question is not only what happens as an actor moves up, but what resources, relationships and organisational capacities will be useful in the broader political playing field.

The dimensions are not fixed stages. Not everyone recruited is selected, not everyone who is selected succeeds in the testing and not everyone who is selected to participate in Lagos will be nationalised. Failed candidates, excluded actors, interrupted careers and displaced networks are thus analytically significant, as they show the limits of leadership production. The framework also does not assume the continuity through reproduction is constant. Reproduction can be by replacement, by bargaining, by adaptation and by incorporation of new actors.

The framework produces four propositions to be empirically tested. Firstly, the continued existence of political arenas may provide ongoing opportunities for recruitment and socialisation in the future when party organisations, state institutions and local networks interact over time. Second, the formal rules of political selection are complemented by informal organisational relationships, and the degree of informal influence varies from contest to contest. Third, succession may involve a transfer of power at the polls alongside elite controlled succession processes that determine who is in the pool of successors. Thirdly, nationalisation is a process which is contingent, not automatic, with respect to political capital conversion and not subnational office holding. These propositions are open to disconfirmation if recruitment fails, organisations break down, they lose elections or if there is no meaningful national conversion.

3. Methodology

A qualitative longitudinal case study design with process tracing and structured qualitative analysis is employed. This period starts in 1999 after the return to civilian government and continues to the present day in the 4th Republic. The design enables continuity, change, conflict and adaptation to be explored over successive administrations and not as singular events.

The empirical approach is structured around the seven dimensions of the political leadership laboratory, but also maintains a longitudinal sequence. The aim of process tracing is not to deduce cause from a sequence of events, but to explain how events change, to discover evidential mechanisms, to compare competing explanations, and to evaluate the evidence for each explanation.

Lagos State is chosen as an analytically important case because of its high economic and electoral significance, but also because of the continuity of political parties, political networks, and political institutions, and the frequent interaction between these three groups. The following features make it a valuable context for studying the recruitment, socialisation, selection, testing, succession, reproduction and nationalisation that are proposed.

The unit of analysis is the subnational political and institutional unit of Lagos State rather than the urban space of Lagos metropolis. The political processes considered – such as the role of the governor, party organisation, selection of candidates, state administration, legislative politics and local political networks are largely institutionalised in Lagos State.

The evidence base is based on primary documentary sources, official records, electoral sources, party sources, legal, fiscal sources, academic scholarship and credible contemporary reporting. Where possible, primary materials are employed to determine the occurrence and sequence of political events. Secondary scholarship, as it was called, both provides theoretical and historical background and is employed especially to reconstruct political contests, public utterances and elite struggles that are not necessarily fully documented in official records, and contemporaneous reporting is used to try to reconstruct political contests, public statements and elite conflicts that may not be fully documented in official records.

The evidence hierarchy is clearly stated. Level one consists of direct evidence such as official records, election results, party documents, appointments, government documents, court records and documented public decisions. Evidence at level two is confirmed independently from credible sources, or from several documentary sources. Analytical inference of informal bargaining, motivation, patronage or network effects (level three) is based on limited evidence. This hierarchy is expressed in the prose, with the use of phrases like 'the electoral results show', 'contemporaneous accounts indicate', and 'taken together, these developments suggest'.

Negative cases are also considered in the study. An open office and an institutionalised succession system cannot be proven by successful office holding alone. Candidates who do not get nominated, incumbents who lose party backing, challengers who are not able to challenge established networks, and actors whose careers never break out of Lagos are relevant as they show the boundaries of political mobility. Recruitment is thus considered both entry and exclusion in the analysis.

The study is not statistically generalized to other states in Nigeria, but is a qualitative single case study. It's analytical and theoretical. Lagos offers an empirically rich environment for the study of the mechanisms of recruitment, socialisation, selection, testing, succession and reproduction, and the nationalisation aspect allows for an examination of how subnational political capital can become meaningful in other settings than the original one.

Analytical transferability is still subject to conditions. The mechanisms found can vary in their nature under varying party systems, institutional configurations, fiscal regimes, electoral contexts and regional political systems. Comparative research is thus needed to establish if the propositions derived from Lagos can be found elsewhere. Recent sources are selectively used for contemporary theoretical or comparative purposes, whereas historical claims are supported by the available documentary evidence and contemporaneous materials, if any, or by the established scholarship.

4. The Subnational Political Arena of Lagos State

Structural characteristics of Lagos are only relevant insofar as they can be identified as political resources, opportunities or constraints. Electoral concentration may give rise to increased organisational demands of electoral competition, economic concentration may result in dense professional and commercial networks, media concentration may lead to increased political visibility, associational density may create opportunities for mobilisation, electoral weight may increase the stakes of coalition building, historical political importance may transmit organisational memory, and fiscal capacity may widen administrative space in which governing experience is accumulated (Cheeseman and de Gramont, 2017; Olukoju, 2005).

Lagos politics is a game of formal and informal/ associational actors. Community organisations, market associations, transport unions, traditional authorities and other intermediaries can have various roles within the administration. Politically, they are important for their ability to mobilize constituencies, negotiate access, negotiate with government, and respond to regulation — they do not necessarily have a fixed division of labor between the state and informal organisations (Fourchard, 2010; Koter, 2013).

The role of formal democratic institutions remains significant. Elections, party primaries, legislative rules and procedures, and courts and constitutional rules shape political opportunities and formal rules of office transfer. Informal networks, endorsements, consultations and organizational relationships, however, can affect candidate viability and the conditions under which formal procedures are put into practice (Helmke and Levitsky, 2004; Rahat and Hazan 2001).

5. The Lagos Political Leadership Laboratory in Action

Recruitment in Lagos is not linear, but a process of multiple pathways. These routes are more visible in the documentary record. Babajide Sanwo Olu got into the Lagos State political and administrative arena via appointment; from 2003, he was appointed with the position of Special Adviser on Corporate Matters, through

to 2004-2005 when he was appointed Acting Commissioner for Economic Planning and Budget; and in 2007, he was appointed Commissioner for Commerce and Industry. Later, he was the Commissioner for Establishments, Training & Pensions under Babatunde Fashola's administration. Then there's the other recruitment route of Akinwunmi Ambode. Prior to his political career, he served in the public service and local government treasury in Lagos State before becoming Auditor General for Local Government, Permanent Secretary of the Ministry of Finance and the Accountant General of Lagos State. It is noted from these records that recruitment was not solely based on the electoral competition but also through political and professional administrative channels (Lagos State University, n.d.; Ambode, n.d.).

Exclusion and unsuccessful recruitment also are visible in the documentary record. The 2014 Lagos APC governorship primary is a clear negative case of recruitment and selection as 12 aspirants were shortlisted for the contest but one got the party ticket. Ambode has won 3,735 votes while Obafemi Hamzat got 1,201 votes and the other aspirants, including Ganiyu Solomon, Adeyemi Ikuforiji, Olasupo Shasore, Leke Pitan, Tola Kasali and Tayo Ayinde did not make it to the nomination list (Channels Television, 2014; The Nation, 2014). The episode illustrates that it was not the case that all political involvement and all elite status was automatically rewarded with being a candidate. It also indicates a competitive edge in the recruitment pool: actors could gain access to the recruitment field without moving on to the governorship.

Political socialisation here is the learning of political knowledge, political organisation, political relations and political expectations via campaigning, party organisations, executive government, legislative institutions and political networks. **(**Ewetan, 2020) The documentary career histories illustrate this process of cumulative history. Sanwo Olu moved up the ladder of special adviser and commissioner before taking over in successive executive roles before becoming governor. The process of Ambode's up-and-down the ranks of treasury positions at the local government level in Lagos, and subsequent appointment as Auditor General for Local Government, Permanent Secretary and Accountant General, offers another avenue of governance knowledge and public sector connections that were built. Ambode's skips and skips through treasury roles within Lagos local governments and his eventual appointment as Auditor General for Local Government, Permanent Secretary and Accountant General, is another governance pathway through which knowledge and public sector relationships were acquired. Another instance of this is the professional expertise that was brought into the Lagos State Executive and then linked to national political office as in the case of Osinbajo who served as the Lagos Attorney General and Commissioner for Justice between 1999 and 2007 (National Boundary Commission, n.d.; Ambode, n.d.; Lagos State University, n.d.).

The Ambode episode is the best documented case of the displacement of the leadership. Ambode was the APC candidate in 2015 and as an incumbent, he sought re-election in 2018. Hence his displacement is analytically significant as it took place after the successful recruitment, selection, election to the formal executive office and the acquisition of executive power. Sanwo Olu and Hamzat then went into the next selection contest, Hamzat withdrew and endorsed Sanwo Olu, and at the time, it was reported that political actors in the Mandate Movement were supporting Sanwo Olu. The National Working Committee of the APC allowed direct elections in Lagos. Once again, the Lagos APC declared Sanwo Olu winner with 970,851 votes against Ambode's 72,901, though the primary was disputed at the time, but later confirmed (Premium Times, 2018). The episode thus illustrates displacement following political success. It does not prove that one actor was the whole master of the situation, but it does demonstrate that incumbency was not a safe bet for continued access to the governing party. (Adegboye, et al, 2020)

The documentary order of events between Ambode and Sanwo Olu makes the relationship between electoral succession and elite managed processes more tangible. Ambode had been beaten in the 2018 primary by the governing party and he subsequently declared himself a winner and called on party members to back Sanwo Olu. INEC later declared Sanwo Olu winner of the 9 March 2019 election for governor in Lagos with 739,445 votes. The evidence thus confirms that there is a process beginning with the contestation of the party nomination, continuing to the formal resolution of the party nomination, and then to the formal transfer of executive office by election. It does not prescribe a fixed succession rule across the board, but it does bring a case study of how informal political relationships and formal electoral processes came into play (Premium Times, 2018; INEC, 2019).

The negative cases are not examples of the supplementary kind; they are tests of the laboratory proposition. There are 4 different boundaries evident in the evidence. The first is when politically active aspirants compete for a party's nomination and fail to secure it, like in the Lagos governorship primary of the APC in 2014. Second, failure is when an actor with a great deal of political or administrative experience fails to translate it into the

office he/she desires to occupy. Third, an incumbent who has already won an elective position later loses the party's nomination, like Ambode's 2018 case. Fourth, non-nationalisation happens when people are involved in the political networks of Lagos, but do not seem to be moving into national office. The negative cases confirm the main thesis: Although Lagos can be a place of accumulation and testing of political capital, entry, progress, retention and nationalisation are conditional outcomes. The laboratory is thus not a natural leadership generator and is an environment of opportunity and constraint that is structured.

6. Lagos-Abuja: The Contingent Nationalisation of Political Capital

Political capital gained within the city of Lagos may be defined as a set of organisational, electoral, governing, relational, fiscal and reputational resources. Organisational capital refers to the party organisation and the skilled political staff. Electoral capital covers experience in engaging constituencies and winning in high stakes elections. Administrative experience and policy reputation are examples of governing capital. Relational capital encompasses cross-party, business, professional, community and regional relationships. Fiscal and administrative capacity sets the context for the operation of governing organisations, but it is not a measure of political financing.

The fiscal path of Lagos is a case in point of this difference. Similar figures reveal that IGR has grown significantly and that the recurrent revenue structure has been such that IGR has outstripped Gross FAAC during the period 2017-2022 (BudgIT, 2023). This suggests substantial fiscal decoupling from federal transfers. The political significance is indirect: more fiscal capacity means more room for administrative discretion and room for administrative development and experience. There is no evidence of direct transfers of state revenue to national elections.

In 2013 the ACN, CPC, ANPP and a group of APGA joined together to form the APC. The merger should thus be examined as a national alliance, and not as a Lagos project. Lagos based networks were an important organisational component, however, the coalition was also reliant on the national followership of Muhammadu Buhari, organisational resources of other parties, regional political actors and broader electoral incentives (Chidi, 2015; Sambo et al., 2022). While the national political trajectory of Tinubu is a clear example of vertical political mobility, the laboratory argument also calls for cases that did not nationalise. The historical evidence in the manuscripts suggests that a significant number of actors participated in the political and administrative system of Lagos, but did not later become national politicians. (Omodero and Alege, 2023). One such boundary case is the 2014 primary, where aspirants like Ganiyu Solomon, Adeyemi Ikuforiji, Olasupo Shasore, Leke Pitan, Tola Kasali and Tayo Ayinde vied for the governorship, without getting the ticket, and their career path was therefore not as vertical as the eventual winner. The Ambode case is another boundary: an actor who made it to the governorship through the same path did not get renominated and therefore did not follow through to the next stage in the governatorial succession. These cases illustrate that being involved in the Lagos arena doesn't automatically lead to political promotion, staying on as a minister or nationalisation. They thus serve as a negative proof for a deterministic reading of the laboratory concept.

7. Discussion: Rethinking Subnational Political Leadership

The Lagos case provides arguments for moving beyond a national perspective on elite formation to a multilevel perspective. Subnational spaces can serve as a partial preparation for national political careers, in which actors gain organisational experience, electoral knowledge, reputation and relationships. This does not imply that national elites are "made" in subnational governments, but simply that they are created there as well. Subnational arenas can be important locations in larger career and coalition-building processes (Stolz, 2003; Borchert and Stolz, 2011).

Recruitment is more understood as an act of entry and exclusion. The political leadership laboratory is not just made up of people who make it but also of those who are blocked from making it. This is a negative case logic because it helps to differentiate a truly permeable political space from a self-replicating political network. The study of competing candidates has further substantiated the need to focus on the study of both successful and unsuccessful candidates (Norris and Lovenduski, 1995; Hazan and Rahat, 2010).

8. Conclusion

The case of Lagos suggests that a subnational political space of consequence can offer multiple opportunities to recruit, socialise, select, test, succeed and reproduce politicians. The longitudinal sequence highlights the political and organisational formation in the Tinubu era, consolidation and adaptation in the Fashola era, a test of executive autonomy in the Ambode era and reproduction and adaptation in the Sanwo Olu era. Political

networks of Lagos are examined in terms of nationalisation, because they entered the national political arena in the following years.

The political leadership laboratory is not presented as a universal model or as a claim that Lagos invented the mechanisms through which political elites are produced. Its contribution is to integrate established mechanisms within a meso level subnational framework and to connect leadership production to the possible conversion of political capital across territorial levels.

Acknowledgement

The authors of this paper sincerely acknowledge the Covenant University Centre for Research, Innovation and Discovery (CUCRID) for its generous support for this conference.

Ethical Declaration: This study did not involve human participants, fieldwork, questionnaires, interviews, or the collection of primary data. Consequently, formal ethical approval was not required.

AI Declaration: No artificial intelligence tools were used in the preparation of this manuscript.

Note: The references are arranged alphabetically by author or institutional author. Before submission, verify missing publication details, particularly the volume, issue and page range for Ewetan et al. (2020), and the publication details for the APC website source.

References

Adegboye, F.B., Osabohien, R., Olokoyo, F.O., Matthew, O. and Adediran, O. (2020) 'Institutional quality, foreign direct investment, and economic development in sub Saharan Africa', Humanities and Social Sciences Communications, 7, 38. doi:10.1057/s41599-020-0529-x.

Adenuga, G., Adenuga, A.O.E. and Oderinde, O. (2021) 'Intra Party Conflicts and Party Stability in Nigeria: A Study of the Alliance for Democracy (AD)', Annals of Management and Organization Research, 3(2), pp. 141 to 151.

All Progressives Congress (APC) (2013) 'All Progressives Congress (APC) v INEC, et al.' Available on the APC website.

Ambode, A. (n.d.) 'About Akinwunmi Ambode'. Akinwunmi Ambode official website.

Bogaards, M. (2004) 'Counting parties and identifying dominant party systems in Africa', European Journal of Political Research, 43(2), pp. 173 to 197.

Borchert, J. and Stolz, K. (2011) 'Introduction: Political careers in multilevel systems', Regional and Federal Studies, 21(2), pp. 107 to 115.

BudgIT (2023) The State of States Report 2023. Lagos: The BudgIT Foundation.

BudgIT (2025) State of States Report 2025: A Decade of Subnational Fiscal Analysis. Lagos: The BudgIT Foundation.

Channels Television (2014) 'Lagos APC Holds Governorship Primary Election', 4 December 2014.

Cheeseman, N. and de Gramont, D. (2017) 'Managing a mega city: learning the lessons from Lagos', Oxford Review of Economic Policy, 33(3), pp. 457 to 476.

Chidi, N.J. (2015) 'Politics of merger of political parties in Nigeria: The past and present efforts to evolve two major parties', Journal of Policy and Development Studies, 9(2), pp. 52 to 63.

Demarest, L. (2022) 'Elite clientelism in Nigeria: The role of parties in weakening legislator voter ties', Party Politics, 28(5), pp. 939 to 953. doi:10.1177/13540688211030219.

Ekundayo, W.J. (2017) 'Political elite theory and political elite recruitment in Nigeria', Public Policy and Administration Research, 7(5), pp. 67 to 82.

Ewetan, O.O., Matthew, O.A., Babajide, A.A., Osabohien, R. and Urhie, E.S. (2020) 'Fiscal federalism and economic development in Nigeria: An auto regressive distributed lag approach', Cogent Social Sciences, 6(1)

Fourchard, L. (2010) 'Lagos Koolhaas and partisan politics in Nigeria', International Journal of Urban and Regional Research, 35(1), pp. 40 to 56.

Hazan, R.Y. and Rahat, G. (2010) Democracy within Parties: Candidate Selection Methods and Their Political Consequences. Oxford: Oxford University Press.

Helmke, G. and Levitsky, S. (2004) 'Informal institutions and comparative politics: A research agenda', Perspectives on Politics, 2(4), pp. 725 to 740.

Independent National Electoral Commission (INEC) (2019) Lagos State Governorship Election, 9 March 2019: Declaration of Results. Abuja: INEC.

Ikeanyibe, O. (2014) 'Internal party democracy, party candidature, and democratic consolidation in Nigeria's Fourth Republic', Politics and Policy, 42(5), pp. 769 to 804.

Kifordu, H.A. (2011) Nigeria's Political Executive Elite: Paradoxes and Continuities, 1960 to 2007. PhD thesis. Utrecht University.

Kopecký, P. (2011) 'Political competition and party patronage: Public appointments in Ghana and South Africa', Political Studies, 59(3), pp. 713 to 732.

Koter, D. (2013) 'King makers: Local leaders and ethnic politics in Africa', World Politics, 65(2), pp. 187 to 232.

Lagos State University (n.d.) 'The Visitor: Lagos State Governor'. Lagos State University.

Michels, R. (1962) Political Parties: A Sociological Study of the Oligarchical Tendencies of Modern Democracy. New York: Free Press.
Mills, C.W. (1956) The Power Elite. New York: Oxford University Press.
Mosca, G. (1939) The Ruling Class. New York: McGraw Hill.
National Boundary Commission (n.d.) 'Vice President: Professor Yemi Osinbajo'. Federal Government of Nigeria.
The Nation (2013) 'ACN National Leader Tinubu on the Formation of APC', 21 March 2013.
The Nation (2014) 'Ambode officially declared winner of Lagos APC primary', 5 December 2014.
Norris, P. (2009) Gender and Political Recruitment: Theorizing Institutional Constraints. Cambridge: Cambridge University Press.
Norris, P. and Lovenduski, J. (1995) Political Recruitment: Gender, Race and Class in the British Parliament. Cambridge: Cambridge University Press.
Ogunyemi, A.O. (2020) 'Between nation building and contestation for power: The place of party politics in Nigeria, 1923 to 2019', Polish Political Science Yearbook, 49(4), pp. 51 to 71.
Ojo, E.O. (2019) 'Party primaries and candidate selection in Nigeria, 1999 to 2009', POLAC Historical Review, 3(1), pp. 51 to 64.
Ojo, E.O. (2023) 'The form and character of circulating governing elite in Nigeria: Past and present', Journal of Governance and Development, 19(1), pp. 29 to 47.
Olukoju, A. (2005) 'Actors and institutions in urban politics in Nigeria: Agege, Lagos since the 1950s', Afrika Zamani, 13 and 14, pp. 153 to 178.
Omodero, C.O. and Alege, P.O. (2023) 'Federal government tax independence, statutory quota and capital investment', Heliyon, 9(10), article e20272. doi:10.1016/j.heliyon.2023.e20272.
Pareto, V. (1935) The Mind and Society. New York: Harcourt, Brace and Company.
Premium Times (2018) 'Lagos APC primaries: Ambode concedes defeat, congratulates Sanwo Olu', 3 October 2018.
Rahat, G. and Hazan, R.Y. (2001) 'Candidate selection methods: An analytical framework', Party Politics, 7(3), pp. 297 to 322.
Sambo, U., Deribe, A.U., Sule, B., Adamu, U. and Musa, A. (2022) 'The implications of party leadership crises on Nigerian democracy: A comparative analysis of the Peoples' Democratic Party and All Progressives Congress', Randwick International of Social Sciences Journal, 3(3), pp. 513 to 528.
State House, Abuja (2024) 'President Tinubu Celebrates Babatunde Fashola at 61', 29 June 2024.
State House, Abuja (n.d.) 'Bola Ahmed Tinubu (GCFR)'. Office of the President, Federal Republic of Nigeria.
Stolz, K. (2003) 'Moving up, moving down: Political careers across territorial levels', European Journal of Political Research, 42(2), pp. 223 to 248.
Tafida, M.L. and Nasidi, N.A. (2023) 'A historical analysis of the dynamics of political transition to civilian rule in Nigeria, 1998 to 1999', NIU Journal of Social Sciences, 9(1), pp. 55 to 63.
Weghorst, K.R. and Bernhard, M. (2014) 'From formlessness to structure? The institutionalization of competitive party systems in Africa', Comparative Political Studies, 47(12), pp. 1707 to 1737. doi:10.1177/0010414013516068.

Subnational Capacity and Upward Institutional Influence: Lagos State and Federal Tax Administration in Nigeria, 1999–2025

Rachel Osaretin Omoruyi Onor, Moses Metumara Duruji and Ugochukwu David Abasilim
Covenant University, Ota, Nigeria

rachel.omoruyi.onor@covenantuniversity.edu.ng
moses.duruji@covenantuniversity.edu.ng
ugochukwu.abasilim@covenantuniversity.edu.ng

Abstract: There are very few studies that test the effect of state government administrative capacity on national institutions. This paper is an attempt to answer the question in the context of tax administration in Lagos state, 1999 to 2025, based on a single-case design and historical process tracing and a corpus of 27 tax administration documents. According to one retrospective source, Lagos State Internal Revenue Service (LIRS) is connected to Federal Inland Revenue Service (FIRS) through a study visit in 2010 while the other source is the appointment of Babatunde Fowler (2005-2014) as chairman of LIRS to that of FIRS in 2015. The paper recognises four stages of upward influence – channel, reference model, adopted practice and national transformation and sets out to define the first two. It is clear from a presidential announcement, a FIRS column, peer-reviewed field research and the press that Lagos was the model for FIRS leadership following 2015. There is no evidence of a named Lagos practice in the FIRS, and much of the change is explained by competing accounts. So the evidence in the documents does not allow for a broader national transformation, and direct practice adoption has not yet been proven. The paper does not seek to achieve national transformation, but only documented upward influence on the agenda of the FIRS.

Keywords: Subnational state capacity, Tax administration, Policy diffusion, Institutional learning, Process tracing

1. Introduction

Studies on the politics of Nigeria tends to focus on the federal institutions. However, federalism allows states powers based on their capacity (Adefolake and Omodero, 2022). what a state can collect and administer dictates how far its autonomy is exercised (Suberu, 2010) and (Erin et al., 2024) . The differences in the internally generated revenues (IGR) of the states are stark, with Lagos reporting ₦815.86 billion, the Federal Capital Territory (FCT) reporting ₦211.10 billion, and Rivers State reporting ₦195.41 billion in 2023 (NBS, 2024).

The reasons for the development of this capacity in Lagos are well documented: leadership incentives, autonomy of agency and the existing interest of elites in fiscal independence (Elemo-Kaka, 2025; de Gramont, 2015). They do not examine if that capacity affected institutions outside of Lagos. It is a common assumption that it did, since a former Lagos revenue chief went on to lead the federal tax authority; but a national agency does not need to emulate a state agency, or even to employ its leader (Omodero and Alege, 2023).

This paper validates one assumption, which is between the Lagos State Internal Revenue Service (LIRS) and the Federal Inland Revenue Service (FIRS). Lagos is a most-likely case, because if it's not there, it's not likely to be in other states with less capacity. The paper has three contributions. First, it conceptualises the influence on institutions at four levels and distinguishes them from the other variables of state capacity, policy diffusion, policy mobility and institutional learning (Table 1). Secondly, it rates the evidence on each of the links between capacity and national change (Table 4). Third, it reveals that, following 2015, Lagos was the documented reference model for FIRS leadership, whereas specific Lagos practices have not been documented, and rival explanations are very strong (Table 5).

2. Literature and Analytical Framework

2.1 Subnational Capacity in Federal Systems

State capacity has extractive, administrative, and coercive aspects (Hanson and Sigman, 2021). The variation across units within each country is large for all three, obscuring the variation that matters (Giraudy, Moncada and Snyder, 2019). In Nigeria, fiscal effort varies across states because personal income tax is state-owned, and states' tax base is skewed by the centralisation of oil revenue together with administrative investment (Suberu, 2010; Bennet, 2012). The two agencies cover slightly different bases as the FIRS levies income tax mainly on companies, petroleum profits tax and value added tax (Bennet, 2012) hence transfer between them cannot be taken for granted.

2.2 Diffusion, Mobility and Learning

Three mechanisms for policy diffusion identified in diffusion research are learning, emulation, and coercion (Shipan and Volden, 2008). Study visits and consultants and moving personnel are shown to be mechanisms that help practices to move in policy-mobility research (McCann, 2011). New practices tend to be added to old practices, rather than replacing them, says research on institutional change (Mahoney and Thelen, 2010). Bassey (2026) sees this in the FIRS, as bureaucratic and managerial changes came on top of a previous relational settlement by Fowler. A national agency that comes across a subnational practice can thus ignore the practice, adapt it, or adopt it.

Three gaps follow. The tax and state-building literature connects revenue effort to bargaining and elite incentives, and demonstrates that international actors influence reform agendas, but it does not explain the impact on other institutions. The literature on tax and state building, however, relates revenue effort to bargaining and elite incentives, and shows that international actors affect reform agendas, but not capacity and its impact on other institutions. Subnational comparative research involves the comparison of units, rather than the influence of units (Giraudy, Moncada and Snyder, 2019). None of the studies reviewed here, test a change in a national tax agency by a subnational tax agency.

2.3 Upward Institutional Influence

This paper conceptualizes upward institutional influence as the documented transfer of a subnational unit's practices, knowledge or personnel to a national unit and the observable change of the national unit as a result of such transfer. It exists in four stages: knowledge or people flow through it; national leaders refer to the subnational record as their diagnosis or justification; a dated document connects a named national procedure with a subnational procedure; national transformation. The definition is deliberately restrictive and Table 1 outlines why it is useful over neighbouring concepts.

Table 1: Upward institutional influence cpmpared with neighbouring concepts

Concept	Central question	Usual direction	Gap that upward influence addresses
State capacity	Can a government execute policy and extract revenue?	Within one jurisdiction	Effects on other institutions
Policy diffusion	Why do policies spread among jurisdictions?	Horizontal, among peers	Personnel channels; receiver side change
Policy mobility	How do policies travel and mutate?	Multi directional	Evidence standard for national effects
Institutional learning	What do receiving organisations learn?	Receiver centred	Origin capacity; identifiable channels
Upward institutional influence	Did a subnational practice reach and change a national institution?	Vertical, upward	Claims limited to the tested institution

Source: authors' synthesis of Shipan and Volden (2008), McCann (2011) and Hanson and Sigman (2021).

In Figure 1, five links are proposed: capacity in the origin institution; a transmission channel; reception by the national institution, as a reference model or as an adopted, adapted or rejected practice; federal change that is not sufficiently explained by other explanations; national transformation, the strongest claim. The test is organised around three propositions. P1: Influence needs to be transmitted through a documented channel. P2: convergence of independent statements, that national leaders used the subnational record as their rationale, is needed to be a reference model of influence. P3: influence as an adopted practice has to be supported by dated evidence of the national institution adopting or adapting a named subnational practice. Only changes that cannot be explained by other factors are recorded at each level.

2.4 Research Questions

RQ1. How did Lagos's fiscal and administrative capacity develop between 1999 and 2025, relative to other states?

RQ2. Through which documented channels did Lagos tax-administration experience reach the FIRS, and did FIRS leaders use Lagos as a reference model?

RQ3. Does the evidence show adoption of specific Lagos practices, and how far do rival explanations account for federal change after 2015?

3. Methodology

3.1 Design and Case Selection

The study is a single-case study (Yin, 2018) of the historical process tracing (Beach and Pedersen, 2019). The unit of analysis is the LIRS–FIRS tax-administration relationship between 1999 (the year of return to civilian rule) and 2025 (when new national tax laws were enacted). Evidence of absence is more informative than evidence of presence, given that Lagos is a most-likely case of upward influence (Seawright and Gerring, 2008). The decision was made to select tax administration because there are official statistics, statutes and agency records available for both institutions, and these can be used to verify each link. The design did not have a comparator state, comparison would determine if there were other states that affected the FIRS, aside Lagos state.

3.2 Corpus and Selection

The evidence corpus consists of 27 documents (Table 2) and another 10 theoretical and methodological texts were used to guide the analysis. The selection was purposive, that is a document was selected if it had an identifiable institutional author and date and it included topics related to Lagos revenue administration, LIRS–FIRS contact, federal tax administration or local-government status. If dates, events or public statements do not have an official record, they are not given any grade other than plausible, unless they are confirmed by at least one other source. Read at second hand, published studies whose authors gathered interviews (Bassey, 2026; Elemo-Kaka, 2025) are primary evidence, and so are interview claims in such studies. All the figures in Table 3 were recalculated using the tables from the NBS. The authors did not gather any new primary data.

Table 2: Evidence corpus (n = 27)

Category	N	Documents	Used for
Official statistics	2	NBS (2015, 2024)	IGR levels and shares
Legislation	5	Lagos State (2006); four federal Acts (2025)	Legal status of LIRS; 2025 reform
Agency and professional records	3	FIRS (n.d.); Fowler (2016); Guardian Nigeria (2017)	Joint Tax Board; 2016 FIRS position; 2017 online services
Think tank and case study reports	3	de Gramont (2015); Bennet (2012); Africa Research Institute (2022)	Reform origins; FIRS baseline; councils
Media reports	11	Vanguard (2014, 2015, 2017, 2018, 2019); Financial Nigeria (2015); Proshare (2015); Channels TV (2016); Anazia (2016); ThisDay (2018, 2019)	Dates, events, 2010 visit, reference model, Lagos practice
Peer reviewed studies	3	Bassey (2026); Elemo Kaka (2025); Suberu (2010)	Interpretation and testimony

3.3 Analytical Procedure

Documents were classified according to the five links and competing explanations were classified with the five links. Process-tracing tests (Van Evera, 1997; Beach and Pedersen, 2019) were used to test each link: a hoop test (must pass) and a smoking-gun test (highly confirmatory, such as a dated federal document with a named Lagos practice). Evidence was rated as Established (an official record, or two independent sources of different origin), Correlative Alignment (administrative practices align, but there is no official record that the federal practice predates subnational contact), or Methodologically Excluded (timing tests confirm that federal practice preceded subnational contact). Origins are presidency, agency, academic research and press. Sources need to converge in a reference model, and a dated statement that adopts a Lagos procedure and the FIRS procedure based on it. Practices that are not explicitly cited are considered Conceptual Parallels in a zone of Correlative Alignment, not proven adoption. A "timing test" does not allow any federal reform to be used if one existed prior to the opening of a channel. The lack of evidence in the corpus is not considered as evidence of absence but as an analytical limitation.

4. Findings

4.1 Fiscal Capacity (RQ1)

IGR for Lagos is presented in Table 3 and compared with other states. Between 2010 and 2014 Lagos's nominal IGR rose 84.2%, from ₦149.97 billion to ₦276.16 billion, and Lagos produced between 35.7% and 41.6% of the 36-state total each year. In 2023 its share of the ₦2.43 trillion collected by the 36 states and the FCT was 33.6%

(NBS, 2024). The ratio of Lagos to Rivers ranged from 2.69 to 3.85 between 2010 and 2014 and increased to 4.18 in 2023, making the gap between the two even larger. Figures are nominal and growth overstates real growth, and shares are not affected by inflation.

Table 3: Internally generated revenue, Lagos and Rivers

Year	Lagos IGR (₦ billion)	Rivers IGR (₦ billion)	Lagos share of total (%)	Lagos to Rivers ratio
2010	149.97	49.63	37.4	3.02
2011	202.76	52.71	41.6	3.85
2012	219.20	66.28	37.5	3.31
2013	236.20	87.91	35.7	2.69
2014	276.16	89.11	39.0	3.10
2023	815.86	195.41	33.6	4.18

Source: NBS (2015, 2024); authors' calculations. Shares for 2010–2014 are of the 36-state total; the 2023 share is of the 36-state and FCT total.

The revenue base was personal income tax. Pay-as-you-earn accounted for 55.6% of Lagos's 2014 IGR (₦153.61 billion of ₦276.16 billion; NBS, 2015). It is relevant to RQ2 as the FIRS's base was different.

The state government under Bola Tinubu in 2005 replaced the management of the revenue board with a team headed by Fowler, and granted autonomy to the board, followed by the LIRS' full operations in 2007 (de Gramont, 2015; Lagos State Government, 2006). According to a government statement, the monthly revenue grew from NN3.6 billion in January 2006 to approximately NN20.5 billion in 2013 (Vanguard, 2015). Factors such as the federal withdrawal of council funding in 2004 and the interest of the elites in fiscal autonomy (Elemo-Kaka, 2025; de Gramont 2015) were cited as triggers.

4.2 Channel One: The 2010 Learning Visit (RQ2)

In 2010, the FIRS sent a team led by the Coordinator Director of the Coordinating Directorate of Enforcement, Teju Somorin to LIRS to study enforcement, taxpayer education, taxpayer registration and customer service for some days (Vanguard, 25 November 2018). However the account is written eight years later, without any report of the visit, and is laudatory, it meets the hoop test as a transmission channel but is at this stage rated as Correlative Alignment. It is limited by two features. First, the FIRS was not a passive recipient; since 2004, it had been engaged in these functions, such as a taxpayer identification number system introduced in 2009, an enumeration project, and a taxpayer-education campaign, which began in 2007, and one-stop offices. Second, both agencies have been granted semi-autonomy during the same period, LIRS in 2006-2007 (de Gramont, 2015) and the FIRS with its Establishment Act of 2007 (Bennet, 2012), suggesting similar design pressures.

4.3 Channel Two: Personnel Mobility (RQ2)

Fowler led LIRS from 2005 to 2014. On 20 August 2015, he was appointed acting FIRS chairman by President Muhammadu Buhari (Vanguard, 2015) and confirmed on 8 December 2015 by the Nigerian Senate (Financial Nigeria, 2015). The channel is Established but has a limited meaning in the context of Lagos. First, state-to-federal transfers have been a feature of the past, as Kabir Mashi from Katsina State board had served as acting chairman from 2012 to 2015, while David Olorunleke and Ibrahim Zukogi were both FIRS officers who served as chairmen of the Kwara and Niger State boards, respectively, before their federal counterparts. Second, the task of a new All Progressives Congress president will leave a political-network channel open, which documents cannot be divorced from the technocratic channel. A third standing channel is the Joint Tax Board that was established in 1961 (FIRS, n.d.) and is headed by the FIRS head (Bennet, 2012). This channel is untested with a board record in the corpus.

4.4 Reception as Reference Model (RQ2)

There are four sources of different origin that indicate that FIRS leadership used Lagos as their reference. First, the presidential declaration of 20 August 2015 singled him out for his work in the Lagos State Board of Internal

Revenue since 2005 (Proshare, 2015). Secondly, Fowler's FIRS column uses the change in revenue collection in Lagos as evidence that automation and administrative reform increases collections, which is justification for the FIRS ICT programme (Fowler, 2016). Third, Bassey (2026) has reported, in a peer-reviewed interview, that Fowler assessed federal action on his Lagos experience by a brewery that paid no value-added tax. Fourth, he was appointed with an order to "replicate on a grander scale" his LIRS experience (Ibukunoluwa, 2019); and Nigerians had hoped he would take his Lagos "magic" to Abuja (Okogba, 2019). The press accounts have been written in retrospect and no procedure is mentioned. The four origins though do come together: Lagos was the standard to which the leaders of FIRS referred in defining the problem and the remedy. That fulfills the rule of Established at the level of reference model. Does not report changes to procedures.

4.5 Adoption, Federal Change and Rival Explanations (RQ3)

The third research question is concerned with the issue of adoption, federal change and rival explanations (RQ3).

There was a change in the federal tax administration post-2015. Bassey (2026) writes about recentralisation, an audit review department and staff turnover, and says that these are added to previous reforms. The Voluntary Assets and Income Declaration Scheme (VAIDS), which started in July 2017, reportedly generated about ₦30 billion and added 14 million tax payers to the tax payers' database, making it 19 million as of June 2018 (This Day 2018), but no document is available that equates it with a Lagos precedent.

There are two documents issued by FIRS which have implications on adoption. There is no Lagos procedure that Fowler (2016) mentions that the FIRS copied, and he mentions Rwanda and a World Bank report next to Lagos. According to Anazia (2016), a FIRS statement on January 2016, a FIRS structure for State Coordinators, more interaction with the State revenue boards and plans to register five million individual taxpayers through the Joint Tax Board are announced. That plan was aimed at personal income tax, which was the area in which Lagos excelled, but the statement fails to include Lagos.

There are four competing explanations other than a Lagos pathway (Table 4). First, FIRS reform started with Okauru in 2004 when the FIRS Establishment Act (2007) and the modernisation of FIRS by the World Bank (Bennet, 2012) were implemented. Second, fiscal pressure: The Federal Executive Council's budget proposal for 2016 was based on a lower oil benchmark price of US$38 per barrel (Financial Nigeria, 2015), thereby increasing the revenue from non-oil sources. Third, international involvement, such as a global wave of tax reform (Fjeldstad and Moore, 2008), World Bank financing and compliance with transparency-initiatives have come before 2015 (Bennet, 2012). Fourthly, the political-network channel mentioned above.

A timing test distinguishes the competitors: a federal reform which came into being before a channel opened up cannot have passed through it. It is then applied to four practice domains in Table 5. Market-level access and taxpayer education precede the 2010 visit (Bennet, 2012), and are thus Methodologically Excluded from the scope of upward influence. Electronic services and the registration of individuals are in accordance with Fowler's appointment, and in line with Lagos practice as described in Eribake (2014), but Lagos has not been referenced in any FIRS document and there is a competing source as FIRS modernised after 2004. This cross-jurisdictional symmetry is similar to a Conceptual Parallel and not substantiated by proof of adoption. This is not considered an Established institutional transfer, but rather a Correlative Alignment.

Table 4: Evidence grading for each link in the sequence

Link	Observable implication	Evidence and rival explanations	Grade
1 Capacity	Large, institutionalised Lagos revenue system	NBS (2015, 2024); Lagos State (2006); de Gramont (2015). Rival: large tax base independent of reform	Established
2a Channel: contact	FIRS team visits LIRS in 2010	Vanguard (2018) only; retrospective	Correlative Alignment
2b Channel: personnel	LIRS head becomes FIRS head	Vanguard (2015); Financial Nigeria (2015). Rival: state-to-federal appointments predate Fowler	Established
3a Reception: reference model	Federal leaders cite the Lagos record as rationale or benchmark	Proshare (2015); Fowler (2016); Bassey (2026); Ibukunoluwa (2019); Okogba (2019). Rival: personal rather than institutional views	Established
3b Reception: adoption	Dated federal document naming a Lagos practice behind a FIRS procedure	None found; cross-jurisdictional congruence observed in two domains (Table 5). Rival: FIRS reforms since 2004	Conceptual Parallel (Correlative Alignment)
4 Federal change	Registration, audit review and recentralisation after 2015	Bassey (2026); Anazia (2016); ThisDay (2018). Rivals: oil-price pressure, international involvement, political networks	Change established; attribution to procedures not established
5 National transformation	2025 laws traceable to Lagos	No document links the 2025 Acts to Lagos	Methodologically Excluded

The 2025 tax laws mark the end of the study period, not a Lagos outcome. The Nigeria Revenue Service (Establishment) Act, signed on 26 June 2025, replaces the FIRS, and the Joint Revenue Board Act creates a body coordinating federal, state and local revenue authorities (Federal Republic of Nigeria, 2025). No document in the corpus traces them to Lagos.

Table 5: Practice congruence between Lagos and FIRS

Practice domain	Lagos practice	FIRS counterpart	Timing and reading
Electronic payment, receipts and clearance	Payment through designated banks, electronic receipts and electronic tax clearance cards, "the first of its type in the country" (Eribake, 2014)	Six online services in 2017: e-registration, e-stamp duty, e-payment, e-receipt, e-filing, e-TCC; Lagos not mentioned (Guardian Nigeria, 2017)	Follows 2015; congruent; FIRS modernisation since 2004 is a rival. Conceptual Parallel
Market-level access	Mini-tax offices in markets from 2006; 38 by 2014 (Eribake, 2014)	One-stop offices under Okauru (Bennet, 2012)	Precedes the 2010 visit; Excluded
Taxpayer education	Testimonial advertisements by prominent residents (Eribake, 2014)	FIRS education campaign from 2007 (Bennet, 2012)	Precedes the 2010 visit; Excluded
Registration of individuals	Self-assessment filing for individuals outside the formal sector from 2008 (Eribake, 2014)	January 2016 plan to register five million individuals (Anazia, 2016); 45 million taxpayers registered by 2019 (Okogba, 2019)	Follows 2015; congruent; Lagos not mentioned. Conceptual Parallel

4.6 Boundary Check: Capacity and Local Accountability

Capacity gains coincided with contested local governance. Elected councils' mandates expired in October 2014, and no election followed until 22 July 2017, 33 months later (Africa Research Institute, 2022); in between, Governor Akinwunmi Ambode swore in 57 sole administrators (Channels TV, 2016), and the All Progressives Congress then won all 57 chairmanships (Vanguard, 2017). Capacity and weak local accountability coexisted; the evidence does not show that one caused the other.

5. Discussion

The evidence is limited to a more specific claim than national transformation. The construction of a large, personal-income-tax-based revenue system (RQ1); the two channels linking the building of such a system to the FIRS (RQ2); and there is no evidence of explicit adoption of named practices, and rivals describe much of the change after 2015 (RQ3). The category of established transfer includes those supported by P1 and P2, but not P3. Three findings follow.

One, influence has degrees. The 2010 visit and Fowler's appointment brought Lagos knowledge into the FIRS, and Lagos served as the yardstick for the FIRS leaders' diagnosis and rationale, but Lagos filtered what was done

in the FIRS, a filtering which coincides with the layering perspective, (Mahoney, Thelen 2010 and Bassey, 2026). State capacity would anticipate influence based on the scale of Lagos, diffusion research focus on the visit itself as adoption, and policy-mobility research would highlight the personnel transfer, with only graded levels distinguishing between the two types of agenda influence and unverifiable conceptual alignment. Lagos was not an actual template, and the movement of personnel between states and the federal government predates Lagos.

Secondly, conditions of tax-base asymmetry are transferable. Lagos administered mostly personal income tax and the FIRS administered mostly company tax, petroleum profits tax and value added tax. Shared functions like registration, enforcement, taxpayer education and customer service were a zone of correlative alignment that was explored during the 2010 visit. Less transferable practices are those related to one's personal income tax.

Third, the direction could be reversed. The 2025 laws create a Joint Revenue Board coordinating all tiers (Federal Republic of Nigeria, 2025, and Bennet 2012) records earlier concern that federal reform could marginalise state agencies. Further work is needed to determine if influence is now downward.

For practitioners, moves alone are not sufficient to ensure transfer; they must have documented processes like benchmarking reviews and secondments with clear terms and conditions; state agencies with aspirations to a national influence should publish dated, replicable processes and present them through the Joint Revenue Board. It is a standard, researchers can use again, grading each level and naming the rival explanation.

6. Limitations

There are 4 limits in the design. It is a single case in one policy domain, and is unrepresentative because Lagos is an economy concentrated. The model identifies conditional mechanisms, not average effects. The evidence is documentary: the finding of the reference model is based on convergence rather than on FIRS internal records, the only ones that test reception are documentary ones, that is, FIRS issued public documents and published interview studies. Influence permeates between one person and the other and the sources are unable to distinguish between Fowler's views and those of LIRS as an institution. The only record of the 2010 visit is a retrospect press feature. Lack of a document from the corpus does not mean that there was not an influence, and evidence of adoption would require records which this design does not contain.

7. Conclusion

The question examined here in this paper is whether Lagos' tax administration capacity had any impact on federal tax administration. It distinguished four levels of institutional influence, and provided routeable connections at the structural channel and reference model levels. The LIRS is linked to the FIRS through a 2010 study visit (saved as a single retrospective press source) and Fowler's 2015 appointment. Four different sources point to an important fact: post-2015, FIRS leadership actively made use of the Lagos administrative record as a reference model. But there is no formal document that explicitly connects Lagos to specific procedures in the FIRS. Rather, pre-existing modernization pathways for FIRS since 2004, macroeconomic fiscal pressures, and international waves of global tax reform seem to be strong, alternative explanations for institutional change.

This, in turn, provides evidence of upward institutional influence in the form of agenda setting and reference modelling in Lagos, while explicit practice adoption and national transformation are Methodologically Excluded by the documentary evidence. A democratic implication is qualified, because Lagos has increased revenues at a time when there were no elected local councils for 33 months, but evidence does not show causation. The main innovation of this study is an evidence-graded framework that identifies structural channels, reference metrics, and Conceptual Parallels, enabling researchers to follow subnational variations and to test them against powerful competing explanations without exaggerating vertical institutional paths.

Acknowledgement

The authors thank the Covenant University Centre for Research, Innovation and Discovery (CUCRID) for supporting this participation.

Ethical Declaration: This study used only published documents and involved no human participants or primary data collection; formal ethical approval was therefore not required.

AI Declaration: An AI assistant (Claude, Anthropic) supported source checking and language editing in the revision of this manuscript. The authors verified all data, citations and interpretations and remain responsible for the content.

References

Adefolake, A.O. and Omodero, C.O. (2022) 'Tax revenue and economic growth in Nigeria', Cogent Business & Management, 9(1), article 2115282. Available at: https://doi.org/10.1080/23311975.2022.2115282

Africa Research Institute (2022) 'Undemocratic governance and local administration in Lagos State', 23 February. Available at: https://africaresearchinstitute.org/wordpress/blog/undemocratic-governance-local-administration-lagos-state/ (Accessed: 2 October 2026).

Anazia, D. (2016) 'FIRS restructures, redeploys 26 directors', The Guardian (Nigeria), 30 January. Available at: https://guardian.ng/news/firs-restructures-redeploys-26-directors/ (Accessed: 3 October 2026).

Bassey, E. (2026) 'Rethinking public administration reform: Institutional layering of bureaucratic, managerial and community logics over time in Nigeria's tax administration', Public Administration and Development, pp. 1–17. doi:10.1002/pad.70058.

Beach, D. and Pedersen, R.B. (2019) Process-tracing methods: Foundations and guidelines. 2nd edn. Ann Arbor: University of Michigan Press.

Bennet, R. (2012) A change agent in the tax office: Nigeria's Federal Inland Revenue Service, 2004–2009. Princeton, NJ: Innovations for Successful Societies, Princeton University.

Channels TV (2016) 'Ambode appoints 57 sole administrators for Lagos LGs', 11 June. Available at: https://www.channelstv.com/2016/06/11/ambode-appoints-57-sole-administrators-for-lagos-lgs/ (Accessed: 2 October 2026).

de Gramont, D. (2015) Governing Lagos: Unlocking the politics of reform. Washington, DC: Carnegie Endowment for International Peace.

Elemo-Kaka, O.O. (2025) 'Constructing a tax culture: Why Lagos State's elites chose taxes over transfers', Regional & Federal Studies, 36(2), pp. 219–263. doi:10.1080/13597566.2025.2486621.

Erin, O., Adegboye, A. and Uwuigbe, U. (2024) 'Public sector transparency and sustainable development: A focus on Sub-Saharan Africa', *Journal of Public Affairs*, 24(1), article e2885. https://doi.org/10.1002/pa.2885

Federal Inland Revenue Service (FIRS) (n.d.) History and milestones: Joint Tax Board. Available at: https://www.firs.gov.ng/firs-organization/goals (Accessed: 2 October 2026).

Federal Republic of Nigeria (2025) Nigeria Tax Act; Nigeria Tax Administration Act; Nigeria Revenue Service (Establishment) Act; Joint Revenue Board of Nigeria (Establishment) Act. Assented 26 June 2025.

Financial Nigeria (2015) 'Senate confirms Tunde Fowler as FIRS chairman', 9 December. Available at: https://www.financialnigeria.com/senate-confirms-tunde-fowler-as-firs-chairman-sustainable-photovideo-details-253.html (Accessed: 2 October 2026).

Fjeldstad, O.-H. and Moore, M. (2008) 'Tax reform and state-building in a globalised world', in Brautigam, D., Fjeldstad, O.-H. and Moore, M. (eds) Taxation and state-building in developing countries: Capacity and consent. Cambridge: Cambridge University Press, pp. 235–260.

Fowler, B. (2016) 'FIRS: Simplifying tax compliance through ICT initiatives', FIRS Tax Discourse series, The Guardian (Nigeria), 4 August. Available at: https://guardian.ng/features/firs-simplifying-tax-compliance-through-ict-initiatives/ (Accessed: 6 October 2026).

Giraudy, A., Moncada, E. and Snyder, R. (eds) (2019) Inside countries: Subnational research in comparative politics. Cambridge: Cambridge University Press.

Hanson, J.K. and Sigman, R. (2021) 'Leviathan's latent dimensions: Measuring state capacity for comparative political research', Journal of Politics, 83(4), pp. 1495–1510.

KPMG Nigeria (2023) 'FIRS and LIRS sign MoU on joint tax audit, investigation and exchange of information', March. Available at: https://kpmg.com/ng/en/home/insights/2023/03/firs-and-lirs-sign-mou-on-joint-tax-audit-investigation-and-exch.html (Accessed: 2 October 2026).

Lagos State Government (2006) Lagos State Revenue Administration Law. Lagos: Lagos State Government.

Mahoney, J. and Thelen, K. (eds) (2010) Explaining institutional change: Ambiguity, agency, and power. Cambridge: Cambridge University Press.

McCann, E. (2011) 'Urban policy mobilities and global circuits of knowledge: Toward a research agenda', Annals of the Association of American Geographers, 101(1), pp. 107–130.

National Bureau of Statistics (NBS) (2015) Internally generated revenue at state level, 2010–2014. Abuja: NBS. Available at: https://www.nigerianstat.gov.ng/pdfuploads/IGR_Tables_2014_complete.pdf (Accessed: 2 October 2026).

National Bureau of Statistics (NBS) (2024) Internally generated revenue at state level (2023). Abuja: NBS. Available at: https://www.nigerianstat.gov.ng/elibrary/read/1241579 (Accessed: 2 October 2026).

Nwozor, A., Olanrewaju, J.S., Ake, M.B., Aleyomi, M.B. and Lawal, E.E. (2021) 'State capture and elective dictatorship in Nigeria's democratic space: A critical analysis', African Renaissance, 18(1), pp. 53–72.

Omodero, C.O. and Alege, P.O. (2023) 'Federal government tax independence, statutory quota and capital investment', *Heliyon*, 9(10), article e20272 https://doi.org/10.1080/23311975.2022.2115282.

Seawright, J. and Gerring, J. (2008) 'Case selection techniques in case study research: A menu of qualitative and quantitative options', Political Research Quarterly, 61(2), pp. 294–308.

Shipan, C.R. and Volden, C. (2008) 'The mechanisms of policy diffusion', American Journal of Political Science, 52(4), pp. 840–857.

Suberu, R.T. (2010) 'The Nigerian federal system: Performance, problems and prospects', Journal of Contemporary African Studies, 28(4), pp. 459–477.

Supreme Court of Nigeria (2004) Attorney-General of Lagos State v Attorney-General of the Federation, S.C. 70/2004, (2004) 18 NWLR (Pt 904) 1, judgment of 9 December. Available at: https://nigerialii.org/akn/ng/judgment/ngsc/2004/2/eng@2004-12-09 (Accessed: 2 October 2026).

ThisDay (2018) 'Receipts from VAIDS hit N30bn', 7 June. Available at: https://www.pressreader.com/nigeria/thisday/20180607/281505046912967 (Accessed: 2 October 2026).

Van Evera, S. (1997) Guide to methods for students of political science. Ithaca, NY: Cornell University Press.

Vanguard (2015) 'Buhari rescinds Jonathan's appointment, makes Tunde Fowler FIRS boss', 20 August. Available at: https://www.vanguardngr.com/2015/08/buhari-rescinds-jonathans-appointment-makes-tunde-fowler-firs-boss/ (Accessed: 2 October 2026).

Vanguard (2017) '#LagosLGpolls: APC wins all 57 chairmanship seats', 25 July. Available at: https://www.vanguardngr.com/2017/07/lagoslgpolls-apc-wins-57-chairmanship-seats-pdp-4/ (Accessed: 2 October 2026).

Vanguard (2018) 'FIRS: Making national, regional and global impact', 25 November. Available at: https://www.vanguardngr.com/2018/11/firs-making-national-regional-and-global-impact/ (Accessed: 2 October 2026).

Yin, R.K. (2018) Case study research and applications: Design and methods. 6th edn. Thousand Oaks, CA: Sage.

The 2026 United States and Israeli Military Conflict with Iran: Implications for International Relations, Global Governance and Security

Rachel Osaretin Omoruyi-Onor
Covenant University, Nigeria

rachel.omoruyi-onor@covenantuniversity.edu.ng

Abstract: The 2026 Military Conflict between the United States, Israel and Iran is an example of a local geopolitical shock that can create a domino effect of vulnerabilities in organisations, the economy, energy, transport and security. This problem is described by existing scholarship, on geopolitical risk, systemic propagation, strategic signalling, information uncertainty, energy security and crisis governance. The question remains what these processes do together in a single path of transmission and how institutional capacity affects that path. This study develops the Systemic Vulnerability Framework (SVF), as a mechanism-based analytical architecture but does not claim that the concepts within the framework are new. The framework separates observed events, reported claims, interpretative reactions, and market expectations and systemic effects. This study takes interpretivist qualitative case study design and applies purposive documentary research, thematic analysis, source triangulation and qualitative process tracing. The empirical case spans the time period from 28 February to 31 July 2026; 2025 is only considered as antecedent context. Findings gives qqualified support for the SVF. The evidence is strongest for the geopolitical trigger, strategic signalling and information uncertainty. Market repricing is tightly associated to the revision of information and changing expectations, but information uncertainty is not separable from physical supply disruption, overall geopolitical risk, production and inventory situation, shipping restrictions and speculation. The buffering and constraint pattern is mixed, as suggested by institutional evidence. The study provides a mechanism-based explanation of the systemic nature of geopolitical shocks and provides implications for governance, strategic management, crisis leadership, organisational resilience and anticipatory risk management.

Keywords: Systemic vulnerability, Geopolitical risk, Energy security, Fear premium, Global governance

1. Introduction

This study explores the possibility of the escalation of a local geopolitical conflict to a systemic governance issue. Geopolitical risk research has shown that geopolitical risks and geopolitical threats can impact the economic outcome (Caldara and Iacoviello, 2022). The ssystemic risk scholarship explains propagation across connected systems, governance crisis research emphasises coordination and communication (Ansell, Boin and Keller, 2010) and energy security research conceptualises vulnerability through exposure and resilience (Cherp and Jewell, 2014). Signalling and uncertainty research describes how strategic actions are interpreted when information is incomplete. The un-resolved question is rather a mechanism gap: existing literatures explain important parts, but are not sufficiently in-depth to provide within-case specification of how strategic signalling and information uncertainty can shift expectations regarding future disruption and how risk can be conveyed across interconnected systems.

The research question is: What does information uncertainty about geopolitical conflict mean for market expectations and broader systemic vulnerability, and when and how can it be cushioned or exacerbated under institutional conditions? This study tackles this question by a process tracing architecture at the event level, connecting geopolitical trigger, strategic signalling, information environment, information uncertainty, perceived threshold significance, market expectations, possible Fear Premium, institutional response, and systemic vulnerability.

The empirical case starts 28th February 2026, when the United States and Israel struck Iran with military operations, and Iran responded with military action against United States and allied interests in the region (United Nations, 2026a). The observation period will run until 31 July 2026. Any development in 2025 is considered antecedent context. The study concentrates on strategic signalling, uncertainty about information, threshold relevance, the expectations of energy markets and institutional reactions, especially regarding the Strait of Hormuz. Observed evidence is different from interpretation and projection. Prospective implications, rather than findings, are made when claims are made about long term changes in the international order.

2. Literature Review and Theoretical Contribution

Several known explanations exist in the literature. Realism accounts for conflict in terms of anarchy, competition for power, survival and threat. Private information, incentives to misrepresent, and commitment problems are all linked to conflict in the rationalist bargaining theory (Fearon, 1995). The use of military action, threats and

commitments to signal a willingness to fight or commit is known as signalling theory (Schelling, 1960). Liberal institutionalism provides an understanding of how institutions can help to provide information and cooperation in anarchy (Keohane, 1984). Interdependence scholarship refers to the fact that economic and physical interdependence provide pathways for shocks to flow (Keohane and Nye, 1977). Energy Security Scholarship focuses on the fragility and robustness of critical energy infrastructure (Cherp and Jewell, 2014).

These views describe various components of the problem, none of which alone gives the full picture of the transmission process discussed here. Geopolitical risk studies frequently set up correlation between geopolitical risk and economic outcomes, but provide less within-case detail on the interpretation of the information and how it becomes expectations. The rationalist theory is useful for understanding uncertainty in strategic bargaining, but is less important in the study of commodity market propagation. Signalling theory describes the mechanism of the communication of resolve, but not fully the mechanism of how the ambiguity of the signal turns into an expectation of energy disruption. Institutionalism explains cooperation and coordination, but not much more detail about how institutional capacity shapes the propagation of a rapidly changing geopolitical shock. Interdependence is a structural possibility of propagation but the uncertainty is not specified.

The SVF is thus not presented as a new collection of concepts. Its contribution is to define a mechanism-based architecture for which the existing processes interact after a geopolitical event. It makes 5 additions. First, it takes the analytical focus away from the event in the geopolitical sphere and onto the transmission process that comes after it. Secondly, it regards the uncertainty of information as an intervening condition. Third, it adds a perceived threshold significance as a mediator between strategic signalling and expectations of escalation and disruption. Fourth, it links market reactions to expectations with systemic vulnerability, but doesn't assume that volatility is necessarily a Fear Premium. Fifth, it places institutional capacity as a moderating condition which can buffer or amplify transmission.

The framework is thus presented as follows: geopolitical trigger – strategic signalling – information environment – information uncertainty – perceived threshold significance – market expectations – possible Fear Premium – institutional response – systemic vulnerability. It is not a causal chain that is determined. It is an analytical architecture, whose links must be assessed in terms of timing, actor interpretation, corroboration and alternative explanations. These propositions are: greater ambiguity of strategic signals and strategic thresholds can lead to more uncertainty in information and revisions in expectations; interconnected energy, transportation, economic and security systems can propagate expectation-based geopolitical risk beyond the battlefield; and institutional capacity can influence the propagation of expectation-based geopolitical risk through verification, coordination, strategic communication and diplomatic deconfliction.

3. Methodology

The research method used in this study is interpretivist qualitative with qualitative case study design. It applies purposeful documentary research. Documentary sources include peer-reviewed academic publications, official documents from governments and international organizations, energy and economic reports and datasets, recognised research assessments and credible international reporting primarily for chronology and contemporaneous claims. Primary and institutional sources are given more weight in factual events while academic sources, are used to interpret conceptual and theoretical issues.

The documentary search was based on concept groups such as geopolitical risk, the Iran United States Israel conflict, strategic signalling, information uncertainty, information warfare, escalation thresholds, the Strait of Hormuz, oil market expectations, energy security, systemic vulnerability, governance crisis, institutional capacity, institutional coordination and diplomatic deconfliction. Searches included case terms as well as mechanism terms. The institutions searched included the United Nations, International Energy Agency, International Monetary Fund, World Bank, World Trade Organization, United States Department of Defence and the United States Energy Information Administration. The Study records that the original retrieval log was not preserved, it is not possible to reconstruct the exact historical retrieval counts for each academic search service in the study. The manuscript thus provides a bibliography count instead of creating initial retrieval numbers.

Documents were included when they provided a documentation of a case event, a report of an institutional response, a relevant theoretical analysis, or credible contemporaneous reporting of a case event. Documents were excluded where they were irrelevant, duplicated another document without supporting evidence, included claims that were not backed up by findings or documents and could not be found or corroborated, or covered post cut-off developments without a clear labelling of the prospective purpose. The screening was carried out

by relevance checking, classification of evidentiary, independent checking of contested claims, and mapping to the process tracing matrix.

The categories of coding were: geopolitical trigger; strategic signalling; information environment; information uncertainty; perceived threshold significance; market expectations; possible Fear Premium; institutional capacity and systemic vulnerability. Other explanation codes involved physical supply disruption, shipping restrictions, inventories, production expectations, demand conditions, speculation and general geopolitical risk. Process tracing records are dated, event, source, documentary evidence, mechanism, actor response, alternative explanation and strength of inference. Only selective hoop, smoking gun, straw in the wind and doubly decisive tests are used. The study does not claim statistical causal identification, but rather distinguishes between direct observation and association and mechanism-based inference.

4. Findings and Discussion

The Art of Geopolitical Trigger and Strategic Signalling.

On 28 February 2026, the United States and Israel launched military operations against Iran. The United Nations described the development as a major military escalation and reported that Iran launched attacks following the development in several countries in the region (United Nations, 2026a). By 28 March, the U.S. Department of Defence announced that 28 February was the start of Operation Epic Fury and that over 11,000 targets had been hit and over 11,000 combat sorties flown by that date (U.S. Department of Defence, 2026). This is a good indication of the geopolitical trigger and strategic signalling aspects, but there are also aspects of operational goals, force protection and deterrence that contribute to the conduct observed.

The Information Uncertainty and Threshold Significance.

On 28 February, the United Nations reported that it was still "fluid" and that many reports were still "unconfirmed. It also reported closure of Iranian airspace, and a near total internet blackout (United Nations, 2026a). These observations validate an intervening condition of information uncertainty. The uncertainty related to completeness, time, reliability and verification. It is not the same as information warfare as it can create uncertainty without being manipulated, for example, due to the disruption of communications or due to the nature of the events changing rapidly.

There is more moderate support for thresh old significance as actor perceptions are not directly observable. The conflict was set in a strategic background of Iran nuclear capability and missile power and regional security. Farouk, Osman and El Rashidi (2026) define the proximate trigger threshold as the moment when a major power will shift from diplomatic pressure to kinetic action when it crosses a perceived strategic threshold. Overall, the evidence indicates that threshold significance is likely to be a mechanism, but it does not give direct access to the perception of private decision makers.

Market Expectations and the Possible Fear Premium

Brent crude started 2026 at approximately $61 per barrel and climbed to $118 by the end of the first quarter, following the escalation and disruption of the Strait of Hormuz shipping route (U.S. Energy Information Administration, 2026a). In the second quarter, Brent ranged from about $72 to $118, and the EIA noted "unusually high volatility" due in part to uncertainty about the reopening of the Strait of Hormuz (U.S. Energy Information Administration, 2026b).

One of the most telling observations of the process tracing was on 13 March 2026. After reports that tankers were traversing the Strait, oil futures opened lower on Reuters news, according to Reuters. These reports were later deemed bogus, and Brent ended up 2.67 percent higher at around $103.14 per barrel (Reuters, 2026a). This provides strong evidence of an association between information revision and market repricing. It does not introduce uncertainty in information as the only cause as physical closure remained and there was still expected disruption in the supply and wider geopolitical risks.

The IEA reported severe restrictions to oil flows and significant physical market stress in early April, with the EIA noting the large spreads between front-month futures and spot prices of Brent (International Energy Agency, 2026a; U.S. Energy Information Administration, 2026c). The evidence points to an expectation-based pricing, but the Fear Premium is tentative. Physical scarcity, inventory depletion, competition for replacement barrels, shipping limitations, production losses, demand and speculation cannot be statistically distinguished in the qualitative design.

Systemic Vulnerability

In early April, oil exports through the Strait of Hormuz averaged around 3.8 million bpd, down from over 20 million bpd prior to the crisis, the IEA reported. The disruption impacted crude oil, natural gas liquids and refined products and led to production curtailments and reduced inventories (International Energy Agency, 2026a). Aviation, petrochemicals, consumption of household LPG, and world demand were among the consequences. These observations do not challenge systemic rupture but systemic vulnerability given evidence of cross system exposure and transmission does not prove permanent change in the international order.

Institutional Capacity and Governance

The institutional capacity was evaluated based on concrete governance cases. The United Nations has urged de-escalation and encouraged dialogue, while the April ceasefire period has featured diplomatic engagement, in which Pakistan and other regional actors have been acknowledged as mediators (United Nations, 2026b). The UN thus created a conducive environment for communication and de-escalation but did not cause the ceasefire. United States Iran talks were held in Pakistan for direct engagement. Partial buffering, not conflict resolution, is seen in the deterioration of the ceasefire in the late period.

The IEA tracked oil flows, stocks and market developments and participated in the high-level coordination group of the IMF and the World Bank. The IMF, World Bank and WTO also co-ordinated the assessments on energy, trade, food security and economic spill overs (International Monetary Fund, 2026a, 2026b). These actions are evidence-based of information provision, cross institutional coordination and systemic shock management. They did not return the physical supply and they did not take away the geopolitical trigger. Institutional capacity can thus be considered a conditional moderator and not a panacea.

Following the 17 June memorandum between the United States and Iran, the EIA (U.S. Energy Information Administration, 2026b) reported that oil prices decreased and tanker traffic in the Strait of Hormuz increased. After some recovery of flows in June, renewed price increases were seen in the IEA July assessment (International Energy Agency, 2026b). This shift reinforces the conclusion that there was a relationship between conflict conditions, expectations and physical energy flows, but there was also an alternate explanation that conflict conditions were followed by renewed physical disruption.

Table 1: Process Tracing Evidence Matrix

Date	Observed event and evidence	SVF pathway	Inference
28 Feb 2026	United States and Israel launched military operations; UN described major escalation.	Geopolitical trigger and signaling	Strong direct observation
28 Feb to 28 Mar	Operation Epic Fury; more than 11,000 targets and more than 11,000 combat flights reported.	Strategic signaling and threshold significance	Strong for signaling; moderate for inferred meaning
13 Mar	Tanker movement reports were clarified as false; Brent rose 2.67 percent to about 103.14 dollars.	Information revision, expectations and repricing	Strong association; moderate mechanism inference
Early Apr	Severe Hormuz restrictions; major physical market stress and spot to futures divergence.	Market expectations and possible Fear Premium	Strong market stress; provisional Fear Premium
1 Apr	IEA, IMF and World Bank established coordination on energy and economic impacts.	Institutional coordination and shock management	Strong direct observation; moderate buffering inference
Apr	UN supported dialogue and recognized regional mediation; Pakistan hosted talks.	Diplomatic deconfliction and expectations	Moderate partial buffering
28 May	IEA, IMF, World Bank and WTO reported energy, food and economic effects.	Cross institutional coordination	Strong direct observation; moderate buffering

Date	Observed event and evidence	SVF pathway	Inference
17 Jun	Memorandum followed by increased tanker movement and lower oil prices.	Expectations, transport normalization and repricing	Moderate association
7 to 8 Jul	Renewed hostilities followed partial recovery of oil flows in June and renewed price increases.	Reverse process tracing	Moderate to strong association
31 Jul	Observation cutoff applied.	Scope condition	Direct methodological decision

Alternative Explanations and Limits

The analysis retains several competing explanations. Oil prices could react to real or perceived supply shock, global geopolitical risk, production curtails, inventories, shipping and insurance expense, demand and/or speculation. Institutional constraints can be due to specific bargaining problems, not to institutional weakness as a whole. Reconfiguration of alliances can be situational. Interdependence is not assumed to be a cause of conflict, but rather a structural condition that can be revealed in a conflict. The Fear Premium is not a measured residual, because the qualitative design cannot statistically isolate these factors.

5. Governance and Management Implications

This study has implications for governance, leadership and strategic management, as geopolitical shocks can traverse information environments, energy networks, transportation systems, markets and institutional arrangements. Recognising and managing transmission is therefore a key element of organisational resilience, before it turns into an internal crisis if an external shock happens.

First, institutional capacity needs to be considered as a strategic management capacity: (Onor. 2023). Procedures need to be put in place in advance of any crisis, such as establishing clear responsibilities, information sharing procedures, escalation procedures and cross-functional working. Second, leaders need to institutionalize evidence-based decision making under uncertainty, including the differences between evidence, contested claims, interpretation and projections, and by engaging in scenario planning, early warning, and independent verification. Third, strategic communication must be considered as an integral part of crisis governance. (Ifaloye, Folarin and Duruji, 2022). Fourth, risk management needs to move beyond categories to a more systemic approach to assessing geopolitical, energy, transportation, financial and informational exposure. (Duruji, Fulani, Osimen, and Abdul, 2026) Lastly, anticipatory governance and adaptive leadership involve organisations making decisions in the light of what evidence suggests, but changing their decisions when the evidence does, and coordinating between organisations.

6. Conclusion

Qualified empirical support for the Systemic Vulnerability Framework is provided in the study. The strategic signals and information uncertainty created by geopolitical escalation affected perceptions of future developments. Market evidence suggests that there was a close relationship between information revision and repricing, and that the evidence for the existence of a Fear Premium is still preliminary, due to the presence of physical disruption and other market forces at the same time. Disruptions in energy were widespread across interdependent systems, enabling the application of systemic vulnerability instead of systemic rupture. The institutional responses show an ambivalent buffering and constraint. Diplomatic communication was facilitated by the United Nations and Pakistan, and information, coordination and economic shock management was provided by the IEA, IMF, World Bank and WTO. There was no evidence that institutions had a dominating influence over the conflict or that information uncertainty drove market movements.

The theoretical significance of SVF is, therefore, the assignment of the relationship between well-established concepts in a specific mechanism-oriented explanation of systemic vulnerability. It does not have general laws. They offer a foundation for comparative use and future quantitative evaluation. It is especially helpful for exploring the potential interaction between geopolitical shocks and information uncertainty, information expectations, material interdependence, and institutional capacity in interdependent systems.

Acknowledgement

The author of this paper sincerely acknowledge the Covenant University Centre for Research, Innovation and Discovery (CUCRID) for its generous support for this conference.

Ethical Declaration: This study did not involve human participants, fieldwork, questionnaires, interviews, or the collection of primary data. Consequently, formal ethical approval was not required.

AI Declaration: No artificial intelligence tools were used in the preparation of this manuscript.

References

Ansell, C., Boin, A. and Keller, A. (2010) 'Managing transboundary crises: Identifying the building blocks of an effective response system', Journal of Contingencies and Crisis Management, 18(4), pp. 195–207. doi: 10.1111/j.1468-5973.2010.00620.x.

Caldara, D. and Iacoviello, M. (2022) 'Measuring geopolitical risk', American Economic Review, 112(4), pp. 1194–1225. doi: 10.1257/aer.20191823.

Cherp, A. and Jewell, J. (2014) 'The concept of energy security: Beyond the four As', Energy Policy, 75, pp. 415–421. doi: 10.1016/j.enpol.2014.09.005.

Duruji, M.M., Fulani, O.M., Osimen, G.U. and Abdul, I.J. (2026) 'Balancing security needs and legal obligations: The future of Nigeria's military in internal security management', *Journal of Military Ethics*.

Farouk, T.M., Osman, S.N. and El Rashidi, K.H. (2026) 'Proximate trigger thresholds and the grammar of great power conflict: A comparative analysis of Cuba (1962), Ukraine (2022 to 2026), and the Iran War (2026)', Open Journal of Social Sciences and Literary Research, 2(1), pp. 12–28.

Fearon, J.D. (1995) 'Rationalist explanations for war', International Organization, 49(3), pp. 379–414. doi: 10.1017/S0020818300033324.

Ifaloye, O.R., Folarin, S.F. and Duruji, M.M. (2022) 'An examination of the Oputa Panel as the vehicle for victim centred justice in Nigeria', *African Renaissance*, 19(Special Issue 1), pp.35–56.

International Energy Agency (2026a) Oil Market Report: April 2026. Paris: International Energy Agency. Available at: https://www.iea.org/reports/oil-market-report-april-2026 (Accessed: 8 September 2026).

International Energy Agency (2026b) Oil Market Report: July 2026. Paris: International Energy Agency. Available at: https://www.iea.org/reports/oil-market-report-july-2026 (Accessed: 8 September 2026).

International Monetary Fund (2026a) 'Joint statement by the heads of the International Energy Agency, International Monetary Fund, and World Bank Group', 1 April 2026. Washington, DC: International Monetary Fund. Available at: https://www.imf.org/en/news/articles/2026/04/01/pr-26100-joint-statement-by-the-heads-of-the-iea-imf-and-wb-group (Accessed: 8 September 2026).

International Monetary Fund (2026b) 'Joint statement by the heads of the International Energy Agency, International Monetary Fund, World Bank Group and World Trade Organization', 29 May 2026. Washington, DC: International Monetary Fund. Available at: https://www.imf.org/en/news/articles/2026/05/29/pr26176-joint-statement-by-heads-of-iea-imf-wbg-and-wto (Accessed: 8 September 2026).

Keohane, R.O. (1984) After Hegemony: Cooperation and Discord in the World Political Economy. Princeton, NJ: Princeton University Press.

Keohane, R.O. and Nye, J.S. (1977) Power and Interdependence: World Politics in Transition. Boston, MA: Little, Brown and Company.

Onor, K.C. (2023) 'Human security implications of foreign military bases in Djibouti', *JPPUMA: Jurnal Ilmu Pemerintahan dan Sosial Politik UMA*, 11(2), pp.119–137

Reuters (2026a) 'Crude futures turn positive on continued Hormuz closure', 13 March 2026. Available at: https://www.reuters.com/business/energy/oil-drops-after-us-issues-license-countries-buy-russian-oil-stranded-sea-30-days-2026-03-13/ (Accessed: 8 September 2026).

Reuters (2026b) 'Why has the Iran-US ceasefire memorandum frayed?', 13 July 2026. Available at: https://www.reuters.com/world/why-has-iran-us-ceasefire-memorandum-frayed-2026-07-13/ (Accessed: 8 September 2026).

Schelling, T.C. (1960) The Strategy of Conflict. Cambridge, MA: Harvard University Press.

U.S. Department of Defense (2026) Operation Epic Fury Fact Sheet: The First 29 Days. Washington, DC: U.S. Department of Defense, 28 March 2026. Available at: https://media.defense.gov/2026/Mar/29/2003904283/-1/-1/1/OPERATION-EPIC-FURY-FACT-SHEET-THE-FIRST-29-DAYS.PDF (Accessed: 8 September 2026).

U.S. Energy Information Administration (2026a) 'Crude oil and petroleum product prices increased sharply in the first quarter of 2026', 7 April 2026. Washington, DC: U.S. Energy Information Administration. Available at: https://www.eia.gov/todayinenergy/detail.php?id=67424 (Accessed: 8 September 2026).

U.S. Energy Information Administration (2026b) 'Petroleum markets responded to disruptions in the Middle East in the second quarter', 15 July 2026. Washington, DC: U.S. Energy Information Administration. Available at: https://www.eia.gov/todayinenergy/detail.php?id=67865 (Accessed: 8 September 2026).

U.S. Energy Information Administration (2026c) 'Brent crude oil spot prices surge past futures price in April', 24 April 2026. Washington, DC: U.S. Energy Information Administration. Available at: https://www.eia.gov/todayinenergy/detail.php?id=67544 (Accessed: 8 September 2026).

United Nations (2026a) 'Statement by the Secretary-General on Iran', 28 February 2026. New York: United Nations. Available at: https://www.un.org/sg/en/content/sg/statements/2026-02-28/statement-the-secretary-general-iran (Accessed: 8 September 2026).

United Nations (2026b) 'Statement attributable to the Spokesperson for the Secretary-General: On the Middle East', 13 April 2026. New York: United Nations. Available at: https://www.un.org/sg/en/content/sg/statements/2026-04-13/statement-attributable-the-spokesperson-for-the-secretary-general-the-middle-east (Accessed: 8 September 2026).